Monograph No. 4
Human Resources Institute

Visual and Auditory Disability

An Overview for the Rehabilitation Counselor

J. Blair Stone
George T. Endo
Jack Spear
Orlando A. Rivera
Emil Petrusa

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Human Resources Institute
College of Business
University of Utah
Salt Lake City

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8/15/82

Under the auspices of Grant No. 44-P-40038/8-12
Rehabilitation Services Administration
U.S. Department of Health, Education and Welfare

University of Utah
Salt Lake City
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Foreword

An unfortunate dichotomy has existed too long between the worlds of health policy and employment policy. No one actually knows the extent to which health limitations pose obstacles to employability or reduce the productiveness of the employed. However, there is a bridge of long standing between those two policy worlds. This bridge is vocational rehabilitation; which for over a half century has sought out those with physical and mental handicaps, evaluated their employment potential, identified the obstacles blocking their labor market entry and devised individualized programs to help them achieve the financial independence, social respect and sense of self-worth which can be found in a job.

That is an appropriate task for all who are concerned with the development and use of human resources. Human beings are both the end and the primary means in society. The Human Resources Institute has an interest in enhancing research into and development of means for improving the employability and employment prospects of all. Not the least important are those with serious hearing and visual disabilities who have every other capability for social and economic contribution and independence.

The monograph series of the Human Resources Institute emphasizes practical tools and solutions to problems of human resource management. This monograph, directed to rehabilitation practitioners and designed to enhance both understanding and practice in meeting the needs of this important human resource group, is a worthy and welcome addition to the series.

Garth L. Mangum
Director, Human Resources Institute

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Preface

This monograph represents an attempt to acquaint rehabilitation counselors with some of the problems associated with visual and auditory disability. It is in no way intended to produce experts in the field. The rehabilitation of the visually disabled and the hearing-impaired requires special training and experience far beyond the scope of this monograph.

The audience for whom the monograph is intended includes practicing rehabilitation counselors and individuals in rehabilitation counselor training programs who may have occasion to deal with the visually disabled and hearing-impaired incidental to their major caseload concerns in rehabilitation. While large urban areas usually have specialized counselors for the visually disabled and hearing impaired, counselors in more rural areas may find themselves primarily responsible for such clients, despite lack of special training or experience. In addition, all persons in rehabilitation should have some acquaintance with the full range of disability and rehabilitation. We hope this monograph will serve the latter purpose insofar as the visually disabled and hearing-impaired are concerned.

The monograph is divided into four chapters. The first deals with the client with visual or auditory disability, the second with the nature and scope of visual and auditory disability. The third chapter is concerned with the psychosocial aspects of these sensory disabilities. The fourth chapter discusses the rehabilitation process as it relates to visual and auditory disability. A short

annotated bibliography is presented for the reader who wishes to pursue topics beyond the scope of the monograph.

The material which follows is the result of multiple authorship. We trust differences in writing style are not obtrusive and will not detract from the content.

Acknowledgments

The authors are deeply indebted to Dr. Robert G. Sanderson, Coordinator of Services to the Deaf, Utah State Division of Rehabilitation Services, and to Mr. Donald Perry, state coordinator, Utah Services for the Visually Handicapped. Both acted as consultants to the project throughout its history and added invaluable criticism and comment as they read and re-read material in the monograph. Both led us to valuable resources for the monograph and made suggestions for its use in the instructional setting. Much of the material concerning the deaf and hard-of-hearing which appears in chapter 1 was written by Dr. Sanderson.

While both Dr. Sanderson and Mr. Perry have much to do with the content of the monograph, responsibility for what appears is solely that of the authors. Any responsibility for errors of fact or interpretation is strictly ours.

We are grateful to Morris Hansen, Gene Stewart, Barry Fowler, and others from our staff of the Utah State Division of Rehabilitation Services for their constructive comments and assistance. Fred Whitney from the Murray B. Allen Center for the Blind made helpful contributions, as did Dr. Grant Bitter of the University of Utah, Department of Special Education. Mr. John Jacobson, a doctoral student in audiology at the University of Utah, contributed heavily to the material in chapter 2 on audiometric testing.

We are especially grateful to Dr. Cecil O. Samuelson, our colleague in the Department of Educational Psychology at the University of Utah, and to the graduate students in rehabilitation counseling at the university for their reading of a first draft of this monograph and their constructive comments and criticism.

Special thanks are due Judy Poulsen and Carol Kirk who spent many hours typing and retyping the manuscript. Ms. Poulsen also acted as general secretary and bookkeeper to the project. If we stayed within the budget, it is due only to her efforts.

— *The Authors*

1
Getting to Know the Client

In a large measure, rehabilitation of individuals with serious hearing or visual disabilities is a process of getting to know the client in depth. Rehabilitation involves assisting individuals to move from a dependent and unsatisfactory role in society to a more independent and self-fulfilling role. This process can be achieved only through a thorough understanding of the client's medical and physical limitations and assets, the client's attitudes, motivations, and degree of psychological adjustment to the disability, the support provided by family members and others in the client's environment, and the background characteristics of the client which may serve both the client and the counselor as clues to the best avenue for pursuit of the rehabilitation goal.

In subsequent chapters of this monograph, rather detailed information is presented concerning each of the above topics, along with a description of the process involved in gathering information on each of the topics. This chapter previews some, but not all, of the sources and types of information that will be expanded upon in subsequent chapters. Its purpose is not to provide an introduction to these chapters so much as to suggest a few areas of special concern in the process of gathering information and making effective use of it. Especially considered is medical, educational, cultural, and social information. Also in this chapter there is a brief consideration of typical misunderstandings and stereotypes the rehabilitation counselor may have concerning the deaf or blind, and finally, the chapter presents a few issues the

counselor is likely to encounter in the rehabilitation of the visually and aurally disabled.

The chapter is only suggestive of the complex problems and issues in the rehabilitation of individuals with visual and auditory disability. It is not exhaustive, but it may serve to alert the counselor to the role his own professional biases, stereotypes, and fears may impose in the process of getting to know the client.

Medical Information

Counselors who do not know their clients will have trouble magnified to the degree of the counselor's ignorance of the disabilities and their resultant handicaps, especially if the client is deaf, hard-of-hearing, or partially sighted. One type of information obviously necessary in getting to know the client is medical. In chapter 2, there is a discussion of the nature and scope of visual and auditory loss designed to help the counselor better understand these disabilities and to competently use medical information received from specialists.

In addition to medical information obtained from specialists' examinations, the counselor may ferret out a good deal of information concerning the client's medical and functional loss by talking directly with the client concerning the disability. Information obtained in this way is obviously less reliable as a guide to the client's medical condition than information from specialists' examinations; however, it is equally important in getting to know the client, for the client's perceptions affect his or her functioning as directly as the actual medical condition. Curiously, many counselors — particularly those new to the profession — find it difficult to talk with clients concerning their disabilities. They feel the client will be sensitive or embarrassed, and that such a discussion will interfere with rapport. Sometimes counselors are so badly informed concerning the disability, or have such negative attitudes toward it, that their own feelings of insecurity make it painful to discuss the disability directly with the client. In most cases, clients do want to talk about their disability because it is the disability or its effects that are of most concern to them. The client's perception of the counselor is of someone who will help ameliorate the effects of the disability. Thus, avoidance of the topic often interferes with rapport, rather than facilitating it.

Parents, spouses, and other family members are also significant sources of information concerning the client's medical condition. Once again, it is the perceptions of those closest to the client that are most important in understanding the client's behaviors, rather than their actual medical knowledge.

Getting to know clients involves knowing their medical condition, but it also involves knowing the perceptions and attitudes of clients, parents, and spouses about that medical condition. Chapter 3 is concerned with the genesis and nature of such perceptions.

Educational Background

Knowing the type of educational background that the individual has come from or is in may have significant bearing on the success or failure of a rehabilitation program. Sanderson (in press) has identified 24 or more distinct educational situations relative to the deaf and hard-of-hearing. Placement within one of these situations serves to enhance or interfere with rehabilitation efforts. Since visual and hearing disabilities serve to interfere with one or the other of our most important learning modalities, the degree of education the client has achieved, the amount the client is capable of achieving, and special needs in training or education are extremely important considerations in effective rehabilitation. Chapter 3 briefly discusses the effects of sensory loss, and chapter 4 attempts to place training and education in perspective as part of the rehabilitation process. The counselor must be aware that visual and hearing disabilities are learning as well as physical disabilities. Thus, educational planning is more complex than with other disabled groups.

Cultural and Environmental Factors

In addition to the educational background of the client, knowledge of other cultural and environmental factors are important in getting to know one's client. Assessment of the physical and social factors in the home environment of the visually disabled or hearing-impaired is especially important. This means that a visit

or visits to the home are essential for counselors. Are there books in the home, musical instruments, Bibles and religious objects, sports materials, and so forth? Is the home organized and tidy, or dirty and disorganized? In the case of younger clients, what are the attitudes and expectations of parents toward their nondisabled children, as compared to the disabled child? Have the parents succeeded in motivating their deaf or blind child to "make good," or have the children been conditioned to expect to be taken care of with no effort of their own? On the other hand, have parents set their expectations of the child so high that the child is programmed for failure? The answers to these and many other questions are critical to knowing one's client. Some counselors view home visits as the responsibility of social workers or home teachers, not of counselors. With all disability groups, but especially with the visually and aurally disabled, knowing one's client requires knowing his or her physical and social environment.

In chapter 4, the types and sources of information necessary to an understanding and knowledge of one's clients are presented in more detail. Probably more than most disabled groups, the visually and aurally disabled are misunderstood by the public at large. Unfortunately, that misunderstanding often extends to the rehabilitation counselor as well.

Misunderstandings and Stereotypes

Rehabilitation counselors are not immune to misinformation and negative attitudes that seriously interfere with their capacity to deal effectively with the visually and aurally disabled.

The general rehabilitation counselor probably knows very little about deafness. He or she may have the impression that a deaf person can communicate normally if given only a hearing aid and special training in using it, or that, with lipreading, a deaf person is capable of normal communication. The counselor may have met deaf persons who lost their hearing in later life and spoke normally, but does not understand that deaf people range throughout the spectrum of ability to speak. Because of misunderstandings like these, the counselor may consider that a deaf person who does not speak is a hopeless case.

Counseling, as it is taught in most academic settings, is a highly verbal process. When a counselor without special training first encounters the deaf person with little or no verbal skills, the counselor frequently feels dismay and has no idea of how to proceed.

The deaf or hard-of-hearing are frequently perceived as clannish, paranoid, and especially fitted for any work setting in which loud noise is a factor. The counselor may fail to recognize that these are stereotyped notions and that the deaf cover as wide a range of individual variation in social behaviors, psychological characteristics, and vocational aptitudes as any other group. Rehabilitation counselors who work with the deaf should know themselves — their attitudes, stereotypic beliefs, and the source of each — even better than they know their clients.

Just as the general rehabilitation counselor working with the deaf and hard-of-hearing may have a misunderstanding of the deaf, so may the general counselor working with the blind or visually handicapped misunderstand these individuals.

The visually disabled frequently arouse feelings of intense sympathy and fear among the sighted population, including counselors. Novels, plays, movies, and other media have frequently depicted the blind either as individuals reduced to begging for sustenance, or as romantically tragic figures whose lives and careers have been blighted and who have become completely dependent upon their loved ones for support, both emotional and financial. Counselors who have been affected by such distortions may see their blind client as an individual who, at best, can only be helped to accept his or her dependent status as gracefully as possible.

On the other hand, the counselor may have known a blind person who engaged in activities which seemed almost miraculous from the sighted person's point of view. A blind person is conferred with special attributes of intelligence and sensory discrimination. It may be assumed that blindness results in an improvement in all other sensory modalities as a natural or divine compensation for the loss of sight, and the sighted attribute the blind with skills beyond those of mortal men. The counselor with this point of view may hold out more hope for the client, but is likely to be severely disappointed by the effort and time required to produce the behaviors expected.

As with the deaf, there is frequently a stereotyping of the capabilities of the blind. For example, since they have lost their vision, only occupations where other sensory modalities are emphasized should be considered, thus, they make good piano tuners and masseurs; mobility is a problem, but it can best be solved with a good guide dog; or the blind are patient and enduring or, conversely, irascible and demanding. The blind and visually disabled, like any other group, are individuals with all degrees of individual variations. Counselors who stereotype their blind clients, whose attitudes are characterized by sympathy or fear, and who are misinformed concerning the nature of visual disability and its effects will not be able to work effectively with their clients. Once again, it behooves the counselor to examine his or her own attitudes, stereotypic beliefs, and sources of information.

Issues in Communication for the Deaf and Mobility for the Blind

Beyond the scope of this monograph to review in detail are some of the issues in the rehabilitation of the visually disabled or hearing-impaired about which there is still much controversy. The issues are important, and rehabilitation counselors need to be aware of them; but their full discussion must be left to experts.

Perhaps no more heated discussion exists than that between advocates of sign or manual communication for the deaf and advocates of oral communication. For the congenitally deaf or those who have lost hearing in childhood and youth, loss of normal communication poses enormous problems of learning. Advocates of manual communication point out that the long, laborious process of teaching oral communication puts the child far behind in acquiring the verbal associations and verbal concepts necessary for normal cognitive growth. Indeed, the loss may be so great and come at such a critical period in development that the deficit in cognitive abilities may never be overcome. On the other hand, advocates of the oral point of view suggest that manual communication is inferior with respect to both learning and as a form of communication. Further, reliance on manual communication is said to interfere with the development of oral communication and,

since it is available to few in the general community, serves to isolate the deaf and subject them to greater problems of adjustment and negative attitudes. Today, there appears to be some move toward rapprochement between the two points of view and the development of an approach to communication involving both manual and oral techniques. This approach is called "total" communication. The issue is still very much alive, however, and the rehabilitation counselor will encounter it.

Less heated, but also at issue, are such topics related to the blind as the use of guide dogs or special electronic devices for teaching mobility to the blind. To date, most experts still appear to favor the long cane, except in special cases. The use of braille with the blind is also receiving some criticism. Some authorities appear to be saying that braille is of little use in a day of tape recorders and typewriters.

Hearing and visual disabilities represent complex problems of adjustment because of the limitations they impose on one's ability to interact with the environment; these problems await further research by specialists in the field.

Summary

Every rehabilitation counselor knows that medical information, educational background, and cultural and social influences constitute important lists of data necessary to achieving successful rehabilitation. Some, however, rely on medical reports, educational transcripts, and social workers' reports to obtain these data. If they do so, they will miss getting to know the client's perceptions of his or her disability, learning problems, and the physical and social millieu in which these disabled exist. To lack such data is to know the client only as a case, not as a human being. As the reader pursues subsequent chapters in this monograph, this fact should be kept in mind.

Rehabilitation counselors are not immune to myths and stereotypic beliefs. This chapter has suggested a few that are frequently encountered when dealing with the blind and the deaf. The counselor must often check the validity of his or her approach to deaf and blind clients, lest it is really misinformation rather than information that guides such efforts. Even expert opinion is

not completely free of bias. In any field as complex as serious sensory disability, controversy exists. The counselor will encounter this controversy and can only be alert to it and its implications for rehabilitation.

2
The Nature and Scope of Auditory and Visual Disability

Individuals orient themselves to the world through their sensory apparatus. When any of the sense modalities are severely limited through illness, injury, or inheritance, individuals are severely handicapped in interpreting the environment and in making sense of their world. This is particularly true of loss to the auditory or visual modalities. In a modern, complex society, even the most simple daily activities are regulated by auditory or visual cues. Education depends almost entirely upon the spoken and written word. Most occupations require response to a wide array of auditory and visual stimuli. Even recreation and entertainment have become largely oriented toward the passive listener or spectator.

In order to reduce the impact of auditory or visual loss, a variety of rehabilitation programs has come into being. Intelligently applied, these programs have shown the capacity to significantly reduce the degree of handicap imposed by auditory and visual disability. Intelligent application depends in part on an understanding of the nature and scope of auditory and visual disability.

The rehabilitation counselor is a key figure in most programs of total rehabilitation. It is not necessary that the counselor become expert in such specialized topics as the anatomy of the ear and eye, the etiology of visual and auditory loss, or the methods of assessing visual and auditory impairment. It is necessary, however, that counselors become knowledgeable enough that they can

function completely as a member of a team which is responsible to the client with auditory or visual disability. Even the counselor who sees only an occasional client suffering from these disabilities must be able to intelligently evaluate medical reports and make appropriate referrals.

What follows is an attempt to review briefly the anatomy and processes of the ear and eye. This is followed by a discussion of the major types of hearing and vision loss and their etiologies, a review of the methods of assessing visual and auditory impairment, and finally, some statistics regarding the prevalence of auditory and visual disorders. For purposes of convenience, each of these topics has first been presented in terms of auditory impairment, then repeated in terms of visual impairment. The authors of this monograph make no claim to completeness of presentation in these areas. The following material is very brief and somewhat superficial. Students wishing a more thorough treatment will find a wide array of books on each of the subjects, some of which are listed in our bibliography. The material presented in this chapter is, of necessity, rather technical. It is presented with two objectives in mind. The first is to make the counselor aware of the nature and scope of auditory and visual impairment as a necessary prelude to a discussion of the functional limitations imposed by these disabilities and the process of rehabilitation as it applies to these disability groups. The second is to serve as a brief reference which the counselor may use when confronted by clients suffering from either disability, and especially in evaluating reports from specialists in the field.

It seems important at this point to provide nontechnical definitions of the terms "impairment," "disability," and "handicap." There is frequently a tendency to use the terms synonymously, and all three appear in this chapter in different contexts. It is hoped that these definitions will help avoid confusion when the different terms are encountered.

Impairment, as it relates to visual or hearing loss, represents a very global term. Impairment covers all degrees of loss from the mildest to total blindness or deafness. Of course, rehabilitation counselors are rarely called upon to assist those who have such mild visual or hearing loss that it presents little or no functional limitation.

Disability is a medical term which relates to a specific loss or injury. Generally, the term "disability" denotes a serious condition which is likely to result in a distinct functional limitation. Such a limitation or limitations will generally qualify the disabled person for rehabilitation services.

Handicap refers to the functional limitation or limitations caused by the disability. It is a descriptive term which describes what the individual *cannot* do as a consequence of his or her disability.

Retinopathy is a type of visual *disability*. Sometimes, in its early stages, it represents only a mild *impairment* of vision with little functional loss. Generally, however, the disability becomes more severe, resulting in varying degrees of visual *handicap*. A person totally blind from retinopathy is handicapped in reading a book. One whose retinopathy has resulted in a serious loss of peripheral vision may be handicapped in driving a car but not handicapped in reading a book.

Anatomy and Process of the Ear

The ear is conceptualized as consisting of three major anatomical areas: the outer ear, the middle ear, and the inner ear. Figure 1 illustrates the basic anatomical structures. In the semidiagrammatic drawing of the ear, "the inner ear is shown with the temporal bone cut away to reveal the semicircular canals, the vestibule, and the cochlea. The cochlea has been turned slightly from its normal orientation to show its coils more clearly. The opening for nerves through the bone to the brain cavity of the skull is quite diagrammatic. The Eustachian tube actually runs forward as well as downward and inward" (Davis and Silverman, 1970).

The outer ear consists of the auricle (or pinna), the external canal, and the tympanic membrane (eardrum) which is a membrane of skin stretched across the external canal.

The middle ear, a small air-filled chamber, contains the ossicular chain which consists of three small bones hinged as a system of levers and called the malleus, incus, and stapes. This ossicular chain transmits the movement of the eardrum mechanically to the oval window, which is a membranous opening into the inner ear. One lumen (opening) of the Eustachian tube is also located in the

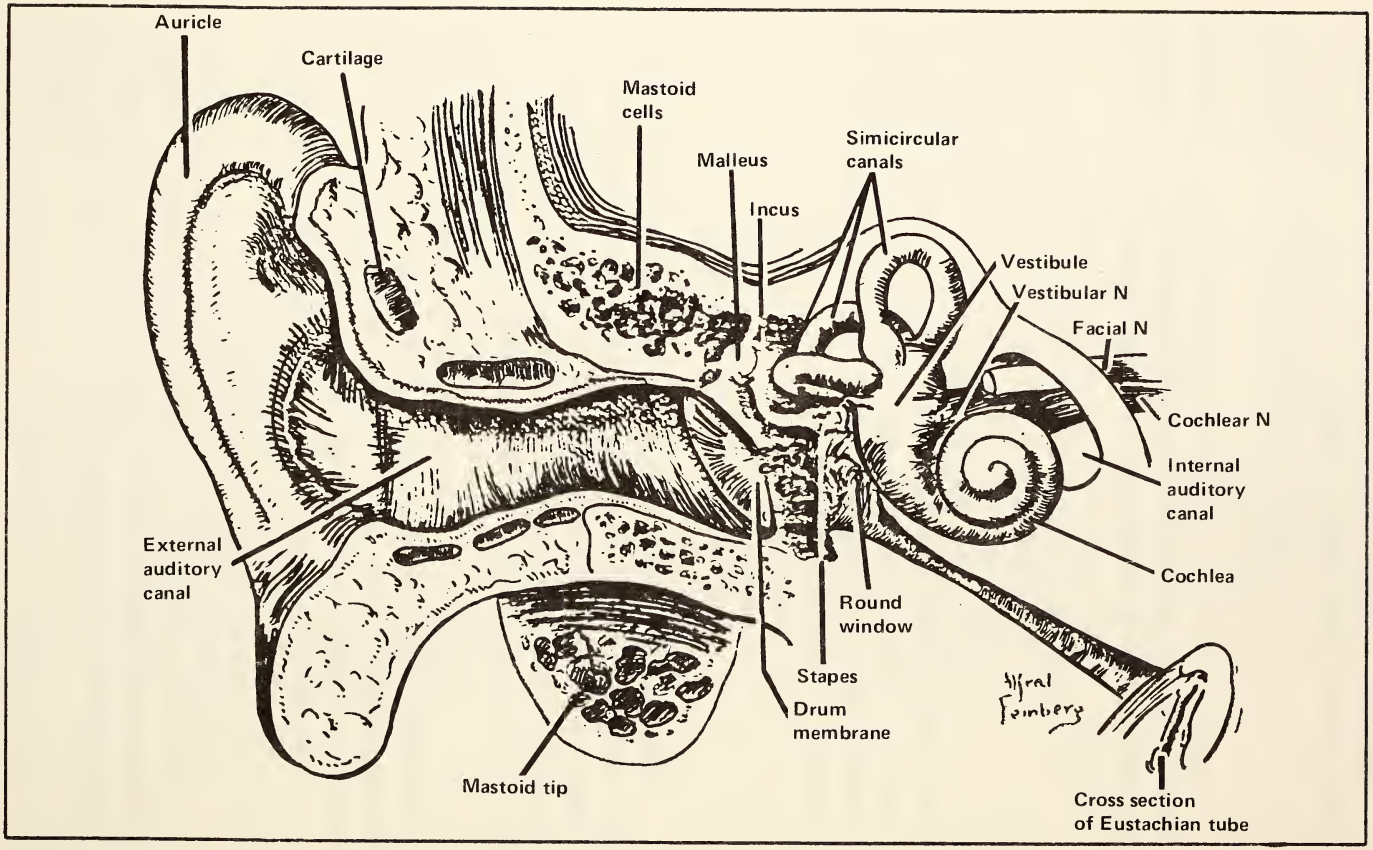
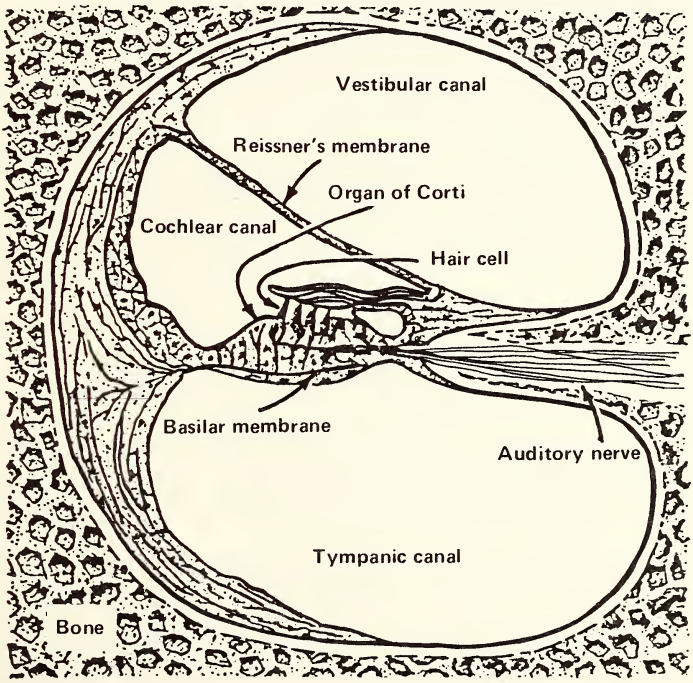


Figure 1. Diagrammatic Drawing of the Ear

middle ear, its function being to equalize air pressure between the middle ear and the external environment.

The inner ear contains the cochlea and the semicircular canals, the latter being associated with the process of balance. The cochlea itself is a spiral-shaped bony structure comprising three fluid-filled canals: the cochlear canal, the tympanic canal, and the vestibular canal. (See Figure 2 for a cross-section of the cochlea.) The basilar membrane separates the cochlear canal from the tympanic canal. Note that the organ of Corti, which contains the hair cells (cilia) is located on the basilar membrane. These hair cells are embedded in an overhanging structure called the tectorial membrane. The eighth nerve, or auditory nerve, is connected to the organ of Corti and serves as the mechanism of transfer to the auditory cortex.



Source: L.S. Wrightsman and F.H. Stanford, *Psychology: A Scientific Study of Human Behavior* (Brooks/Cole Publishing Co., 1975).

Figure 2. Cross-Section of the Cochlea

Auditory Process

A sound, physically defined, is the movement of air particles against each other. These particles are channeled by the pinna into the outer canal to the tympanic membrane (eardrum). The eardrum is cone-shaped like a speaker, rather than flat, and it is able to vibrate due to loose folds at the edges. As it is set into vibration by the air particles, the handle of the malleus, which is embedded in the surface of the drum, is thus set into motion. The malleus, incus, and stapes (known as the ossicular chain) are set into motion as a unit. Principally, they amplify by lever action the movement of the eardrum, increasing the intensity of the sound by 30 decibels (dB).[1] The end of the ossicular chain, the stapes, has a footplate which is embedded in the oval window of the cochlea.

As the stapes "rocks" in the oval window, it compresses the fluid which fills the vestibular canal and the tympanic canal. This fluid, known as the perilymph, is nearly incompressible. Therefore, in order to relieve the pressure created by the rocking stapes, the round window, a membrane at the end of the tympanic canal, bulges out. At the same time that this process of pressure is occurring, another process of pressure is also occurring in the third canal, the cochlear canal. As the sound pressure travels through the vestibular canal, it also presses on the vestibular membrane, thereby creating pressure on the endolymph fluid which fills the cochlear canal. The perilymph fluid is also nearly incompressible, and in order to relieve the pressure created on it, the basilar membrane bulges out. It is when the basilar membrane bulges out that a "shearing" action is created on the cilia (ultra-fine hair cells) within the organ of Corti. These cilia are what initiate the nerve impulses which are transmitted to the brain to be decoded as sound.

One of the physical characteristics of sound is frequency, which refers to the actual frequency of vibration of the sound waves in the air. Frequency of sound is expressed in cycles per second, and this unit is called a Hertz (Hz). Low-frequency sounds

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[1] A decibel is a ratio (0.0002 dyne/CM 2) which quantifies the relative loudness of sound and is equal to the smallest degree of difference of loudness typically detected by humans.

(associated with longer sound waves) are detected at the apex of the cochlea, and high-freqency sound waves (associated with shorter sound waves) are detected at the base of the cochlea. Depending on which area of the "line of cilia" is stimulated, the brain perceives high or low frequencies.

Bone and Air Conduction

There are two methods of sound conduction: bone and air. The previous section presented a brief description of the process of air conduction.

The process of bone conduction operates somewhat differently. Since the inner ear is encased in bone, vibration of this bone (the petrous portion of the temporal bone) through the vibration of nearly any other bone structure of the head, including the teeth, will cause movement of the fluid in the inner ear. Bone conduction is, however, less efficient than air conduction for two primary reasons. First, the intensity of the sound must be strong enough to set the bones vibrating. Second, flesh and bone do not transmit sound waves accurately, thus there is some distortion in the perceived sound.

All people normally hear through both bone and air conduction. Bone conduction is particularly important in the monitoring of one's own voice — which is why people are often surprised at their own voices on a tape recording.

Major Types of Hearing Impairment

Hearing impairments can be classified into organic or nonorganic (functional) losses. Jacobsen (1975) states that all organic hearing loss reflects actual abnormalities in the auditory system. The section here is concerned first with organic losses and then nonorganic loss.

Organic Hearing Losses

The three major types of hearing impairment include those stemming from conductive disorders, sensorineural pathologies, and central auditory dysfunctions.

Conductive Loss

Dysfunctions of the outer and middle ear produce conductive hearing losses. The difficulty here lies with the transmission rather than the perception of sound.

Conductive hearing loss is reflected when there is physical blockage of the ear canal, injury to the eardrum, disruption or ossification of the ossicular chain or middle ear disease (Jacobsen, 1975). Typical observable symptoms (these are generalizations) include speaking in a quiet voice and being able to tolerate loud speech and sounds. Typical audiological symptoms include relatively unimpaired speech discrimination (provided the sound is intense enough), some loss of sensitivity for sound of all frequencies, and complaints of tinnitus (constant or continuous head noise similar to the ringing sound which one may hear after shooting a gun).

Etiologies of Conductive Loss

There are several causes of pathology of the outer and middle ear. The following is a list of some of the more common types (Newby, 1964, and Jacobsen, 1975).

(1) *Ankylosis:* Ossicular chain adhesion due to complications of a middle ear infection.

(2) *Atresia:* Deformation, blocking (due to impacted wax), occluded canal at birth or occluded canal due to external otitis which causes skin swelling, or congenital absence of the external ear canal.

(3) *Cholesteatoma:* Cyst of the middle ear cavity.

(4) *Eustachian tube blockage:* Constriction of the Eustachian tube, usually due to nasopharyngeal infection. This condition typically results in retraction of the eardrum, since there is no pressure equalization.

(5) *Ossicular chain disarticulation:* Disruption of the ossicular chain.

(6) *Otitis media (serous):* Nonbacterial fluid filling the middle ear cavity due to upper respiratory infection. This condition typically results in distension of the eardrum and, if chronic, may cause permanent damage.

(7) *Otosclerosis:* Calcification of the footplate of the stapes against the oval window of the cochlea. Often associated with the aging process.

(8) *Tympanic membrane perforation:* Hole within the tympanic membrane due to direct trauma or middle ear infection. This condition may cause cholesteatoma and mastoiditis (an infection of the mastoid cells). Mastoiditis can be life-threatening, especially if the infection spreads to the meninges which is the sheath covering the spinal cord and the brain.

Sensorineural Loss

This type of impairment is due to dysfunction of the cochlea and usually involves damage of the inner and outer hair cells which are ennervated by afferent sensory neurons (Jacobsen, 1975). Damage to hair cells may be selective or widespread, and cochlear damage is said to be permanent and nonreversible. Disorders of the afferent auditory pathway resulting from tumors of the eighth nerve also fall into the category of sensorineural loss and are referred to as "retrocochlear impairment."

Typical observable symptoms (these are again generalizations) include excessive loudness of voice due to loss of bone conduction sensitivity, and some loss of speech discrimination as exhibited by confusion with similar words such as *fake*, *cake*, and *sake.* Symptoms which may be seen audiologically include higher thresholds of sound in order to detect high frequencies and complaints of tinnitus, a purely subjective sensation of a ringing or a roaring sound.

Etiologies of Sensorineural Loss

The following is a list of common causes of sensorineural disorders (Jacobsen, 1975).

(1) *Acoustic trauma:* Exposure to high-intensity noise.

(2) *Congenital:* Classifications include:

(a) Viral infections (maternal rubella, influenza, mumps, encephalitis).

(b) Incompatibilities (Rh factor, jaundice, bilirubin).

(c) Nonhereditary factors (prematurity, prolonged labor, cyanosis, stenosis).

(3) *Heredity:* Syndromes caused by a single faulty gene, "familial deafness."

(4) *Menieres disease (endolymphatic hydrops):* Inflammation of the endolymphatic sac associated with episodic vertigo (disordered dizzy state), tinnitus, and a fluctuating hearing loss.

(5) *Ototoxicity:* Destruction of hair cells due to the intake of ototoxic drugs, primarily mycin-based. Loss may be from moderate to profound, and usually depends on the susceptibility of the individual.

(6) *Presbycusis:* Hearing loss associated with aging, involving the loss of elasticity of tissue structure and poor articulation of the ossicles. Clinical symptoms reflect a gradual, high-frequency, bilateral hearing loss.

Central Auditory System Loss

Disorders attributed to pathologies in the auditory brainstem pathways and the primary and secondary projection areas of the temporal lobe of the brain are classified as central hearing loss. Due to the complexity of the auditory system at the cortical level, lesions at this affected level are least understood. Recent investigation has produced fundamental trends in the clinical evaluation of central auditory lesions and include: (1) no appreciable decrease of hearing sensitivity to pure tone stimulus, (2) difficulty in understanding speech even at comfortable listening levels, and (3) speech intelligibility breakdown under dichotic listening conditions (competing sounds).

Etiologies of Central Auditory Loss

The following is a list of causes of the central auditory system loss.

(1) *Erythroblastosis fetalis:* Results from blood group incompatibilities (e.g., Rh factor) between mother and fetus. Complete transfusions are necessary to prevent kernicterus, a process which results in jaundicing nuclei of the brain; if not complete, the end result may be

cerebral palsy, mental deficiency, or auditory impairment.

(2) *Acquired physical damage:* May be associated with a tumor or abscess, vascular changes in the brain, or brain damage resulting from trauma.

Nonorganic (Functional) Hearing Loss

Ventry *et al.* (1963) offered an operational definition of functional hearing loss where the following circumstances apply: (1) discrepancies among intertest and intratest audiological examinations cannot be explained on the basis of an organic condition, and (2) medical examinations rule out apparent organic conditions. Several factors may contribute to an individual feigning a hearing loss which does not exist, or exaggerating a loss of true organic nature. Martin (1972) recognizes four factors: (1) the increasing number of awards made by our courts in compensation for disability incurred through negligence, (2) pensions paid by the Veterans' Administration for service-connected hearing loss, (3) the desire to avoid situations regarded as undesirable, and (4) other gains to be afforded as a hearing handicapped person.

Assessing Auditory Impairments

This section discusses types of auditory impairments and devices which help, and gives examples of audiometric interpretation.

The Audiometer

The audiometer, an electronic device used to assess hearing acuity, is the basic instrument of the audiological clinic. Although every audiometer will vary according to its sophistication, the basic instrument is designed to measure hearing at various frequencies and intensity (loudness). The audiometer is also equipped to assess both air and bone conduction.

The Audiogram

The audiogram is a graphic representation of the hearing sensitivity (threshold) for air and bone conduction testing, using the audiometer. The frequency of the tone measured in Hertz (Hz) are found on the abscissa, while the hearing level (HL) is measured in decibels (dB) and located along the ordinate. (Figures 3 and 4 in a later section show typical audiograms.)

Recently, the American Speech and Hearing Executive Board (1974) standardized symbols for use on an audiogram. The right and left ears are shown in the figures in reverse order (right ear on left side of page, left ear on right side). The air conduction threshold symbol for the right ear is "O," for the left, "X." The bone conduction threshold symbol for the right ear is "H" and for the left, "K." Masked pure tone symbols (hearing for pure tones when accompanied by noise) are also found on the audiogram in Figure 3 (pp. 24-5) and Figure 4 (pp. 27-8).

The audiogram further includes speech reception thresholds (SRT) in dB, hearing level (HL), an air conduction average (AC ave) of three frequencies (500, 1,000 and 2,000 Hz), and speech discrimination scores (in percentages). The SRT is the lowest intensity level at which an individual can correctly identify 50 percent of a list of two-syllable words. The three-frequency AC average is a method of predicting the interest consistency between pure tones and speech thresholds. If scores differ more than ten dB, either one or both test procedures should be repeated.

Speech discrimination (intelligibility) on the other hand is the percentage of words repeated correctly at some predetermined level. This level may be based on a certain value above the SRT or at an individual's most comfortable listening level (MCL). Phonetically balanced (PB) word lists have been researched in terms of their balance and difficulty. The criterion of 90 percent and above has been used as a normal base limit. Speech discrimination is a function of frequency; consequently, as a sensorineural hearing loss becomes poorer, discrimination scores decrease. However, since conductive hearing losses are due to middle ear pathologies and not the cochlea, discrimination scores stay within normal limits when the presentation of the PB words lists are loud enough.

Reference Levels

There are three terms which refer to different starting or reference points used to specify acoustic stimulation in audiometric testing. They are hearing level (HL), sensation level (SL), and sound pressure level (SPL). The most common reference used in reporting audiometric results is the HL. These values range from 0 to 110 dB. A typical audiological report might include the hearing sensitivity (threshold) of an individual to be 35 dB HL at 1,000 Hz.

Interpretation

Since it is the position of the audiologist to evaluate and discriminate information concerning the status of the patient under consideration, the following two tables may be used as a guide to the interpretation of specific audiometric tests. It must be emphasized that only a qualified audiologist should administer audiometric tests. It is the role, however, of the rehabilitation counselor and the audiologist to work together developing an aural rehabilitation program to meet the needs of the individual. A number of specific tests will be mentioned, and it is suggested that if further information be required, any number of adequate texts on diagnostic audiology are available (see bibliography list). A later section gives examples of the audiograms and their interpretation.

Tables 1 and 2 are adapted from Goodman (1965) in preparing a guide relating hearing threshold levels and degree of hearing impairment. Table 1 contains hearing threshold level categories based on standard references and provides a scale of terms commonly used to describe the severity of hearing impairment.

Table 2 groups categories of hearing threshold level in terms of probable handicap and needs. It is important to realize, however, that since the degree of handicap imposed by a hearing loss is not solely measured by pure tone thresholds, additional considerations must be made prior to rehabilitative recommendations.

In the section of this chapter concerned with etiology, a variety of hearing disabilities was listed. Table 1 indicates the degree of hearing impairment which may accompany such

Table 1
Scale of Hearing Impairment

Hearing Level Threshold (HL)	Descriptive Term
0 to 26 dB HL	Normal limits
27 to 40	Mild hearing loss
41 to 55	Moderate hearing loss
56 to 70	Moderately severe hearing loss
71 to 90	Severe hearing loss
91 and over	Profound hearing loss

disabilities and is ascertained by audiometric evaluation. Table 2 describes the functional handicaps imposed by different levels of impairment. In summary, it seems important to distinguish between the commonly used terms "deaf" and "hard-of-hearing."

Deafness

It may be said that the deaf person, even with the use of a hearing aid, cannot hear well enough to understand the normal conversational speech in his educational, occupational, or social environment. He or she is visually oriented, although each may perceive loud noises such as an auto horn or the beat of a drum.

Hard-of-Hearing

The person who is hard-of-hearing may have poor, fair, good, or excellent discrimination of the spoken word. Such a person is oriented to sound and learning by sound, although he or she is also apt to be more visually oriented than the normally hearing person.

Examples of Audiometric Interpretation

Figure 3a is an example of an individual who has normal hearing bilaterally. Air and bone conduction thresholds are

Table 2
Relations between Hearing Threshold Level
and Probable Handicap and Needs

Hearing Threshold Level	Probable Handicap and Needs
Less than 50 dB	Has difficulty hearing faint or distant speech; needs favorable seating and may benefit from lip reading instruction. May also benefit from hearing aid.
50 to 55 dB	Understands conversational speech at a distance of three to five feet; needs hearing aid, auditory training, lip reading, favorable seating, speech conservation, and speech correction.
55 to 70 dB	Conversation must be loud to be understood and there is great difficulty in group and classroom discussion; needs all of above plus language therapy and maybe special class for hard-of-hearing.
70 to 90 dB	May hear a loud voice about one foot from the ear, may identify environmental noises, may distinguish vowels but not consonants; needs special education for deaf children with emphasis on speech, auditory training and language; may enter regular classes at a later time.
More than 90 dB	May hear some loud sound, does not rely on hearing as primary channel for communication; needs special class or school for the deaf; some of these children eventually enter regular high schools.

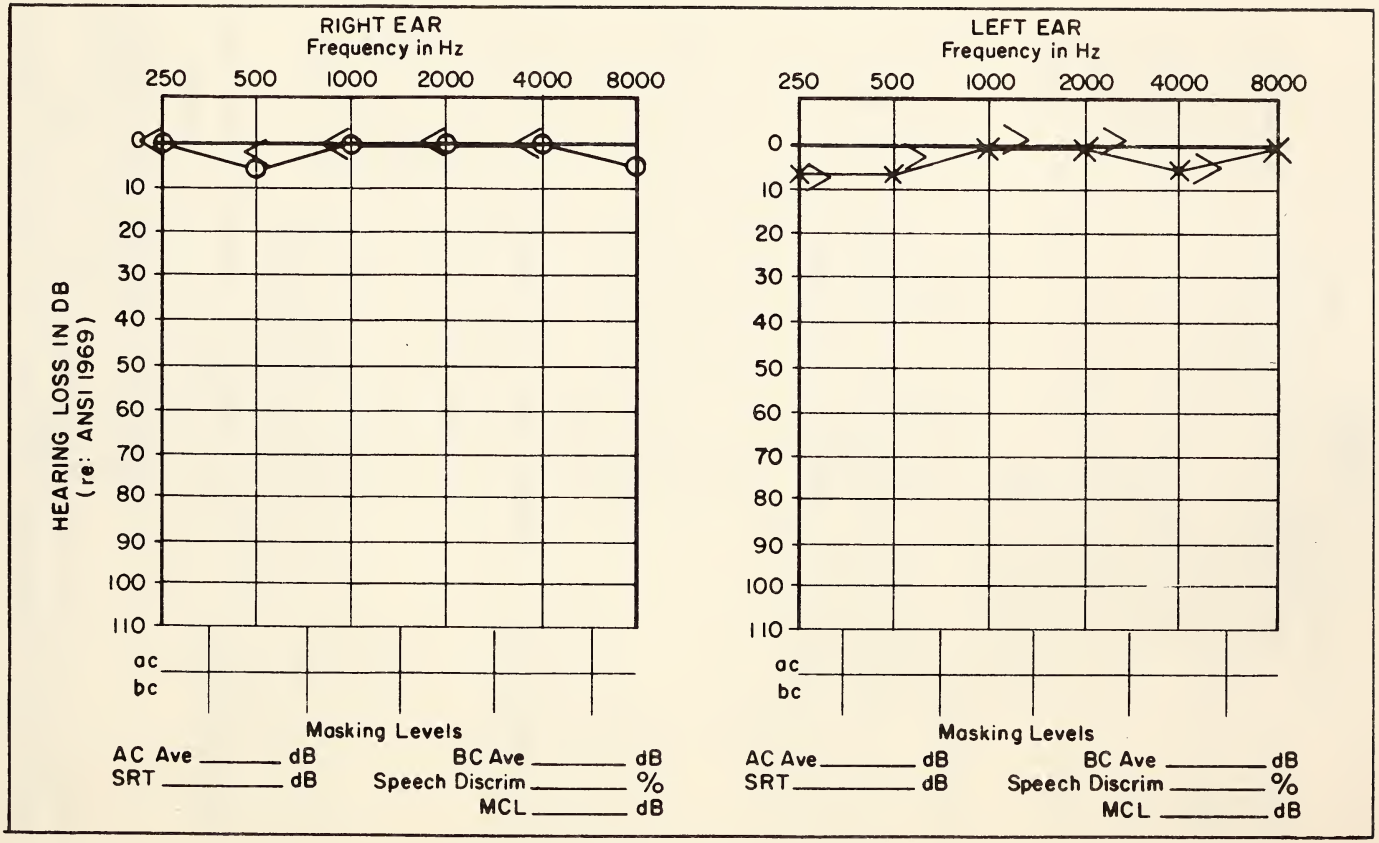


Figure 3. Audiometric Evaluation

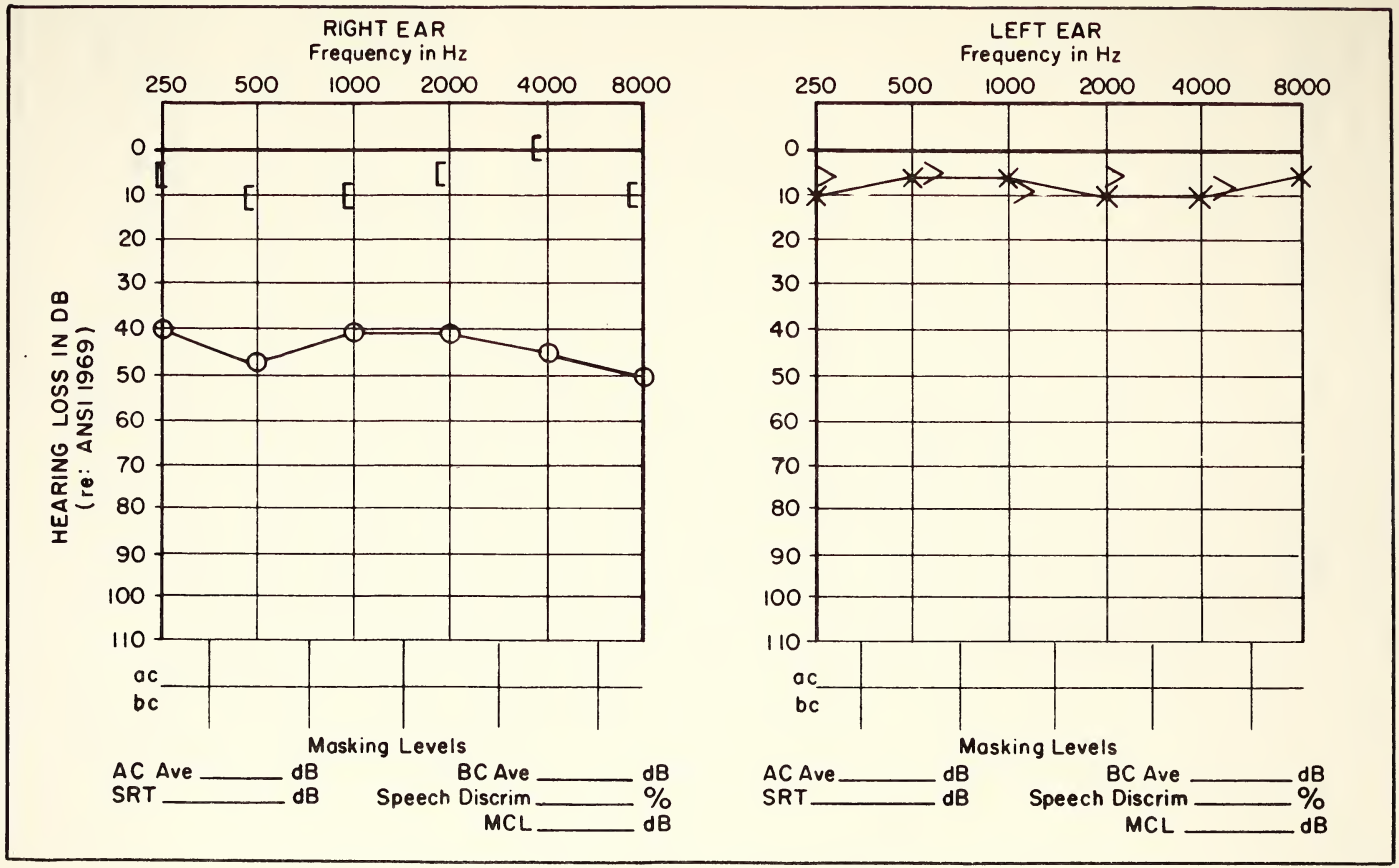


Figure 3 (continued)

superimposed, within normal limits, throughout the frequency spectrum. Speech reception thresholds are normal and show good interest consistency with three frequency pure tone averages. Speech discrimination scores are both above 90 percent, as would be expected for a normal hearing individual.

Figure 3b represents a mild to moderate conductive hearing loss in the right ear. Masked bone conduction thresholds are within normal limits, while air conduction scores are depressed (poorer). SRT and the three frequency pure tone averages are consistent, and speech discrimination is within normal limits. This is a typical audiogram of an individual with otitis media or otosclerosis. It should be recalled that air conduction scores are always poorer than bone conduction thresholds in a conductive loss because air conduction measures the entire auditory system while bone conduction testing measures the cochlea and bypasses the middle ear system. The difference between the air conduction and bone conduction thresholds is known as air-bone gap. Figure 4a is an example of a noise-induced sensorineural hearing loss of the right ear and a profound sensorineural hearing loss of the left. Early noise-induced hearing losses show normal hearing sensitivity at frequencies below 4K Hz and a dip at Hz with an improvement at 8K Hz but not back to normal levels. SRT and AC averages are slightly depressed but within normal limits. Since the majority of speech is contained between 300 and 3K Hz, discrimination is usually within normal limits. As exposure to intense noise continues, frequencies below 4K Hz become involved, SRT drops, and discrimination scores fall below 90 percent.

The left ear shows depressed hearing at frequencies 250 and 500 Hz (air conduction) but the remainder of the frequencies show no response by either air or bone conduction. Since hearing sensitivity is so depressed, neither SRT nor discrimination scores could be determined. A patient history will indicate whether the loss was acquired or congenital and determination may be speculated from this point.

Figure 4b represents a bilateral sensorineural hearing loss. The audiogram is typical of presbycusis, a gradual decrease in hearing sensitivity due to the aging process. AC averages and SRT are consistent, while speech discrimination has fallen below normal limits (90 percent).

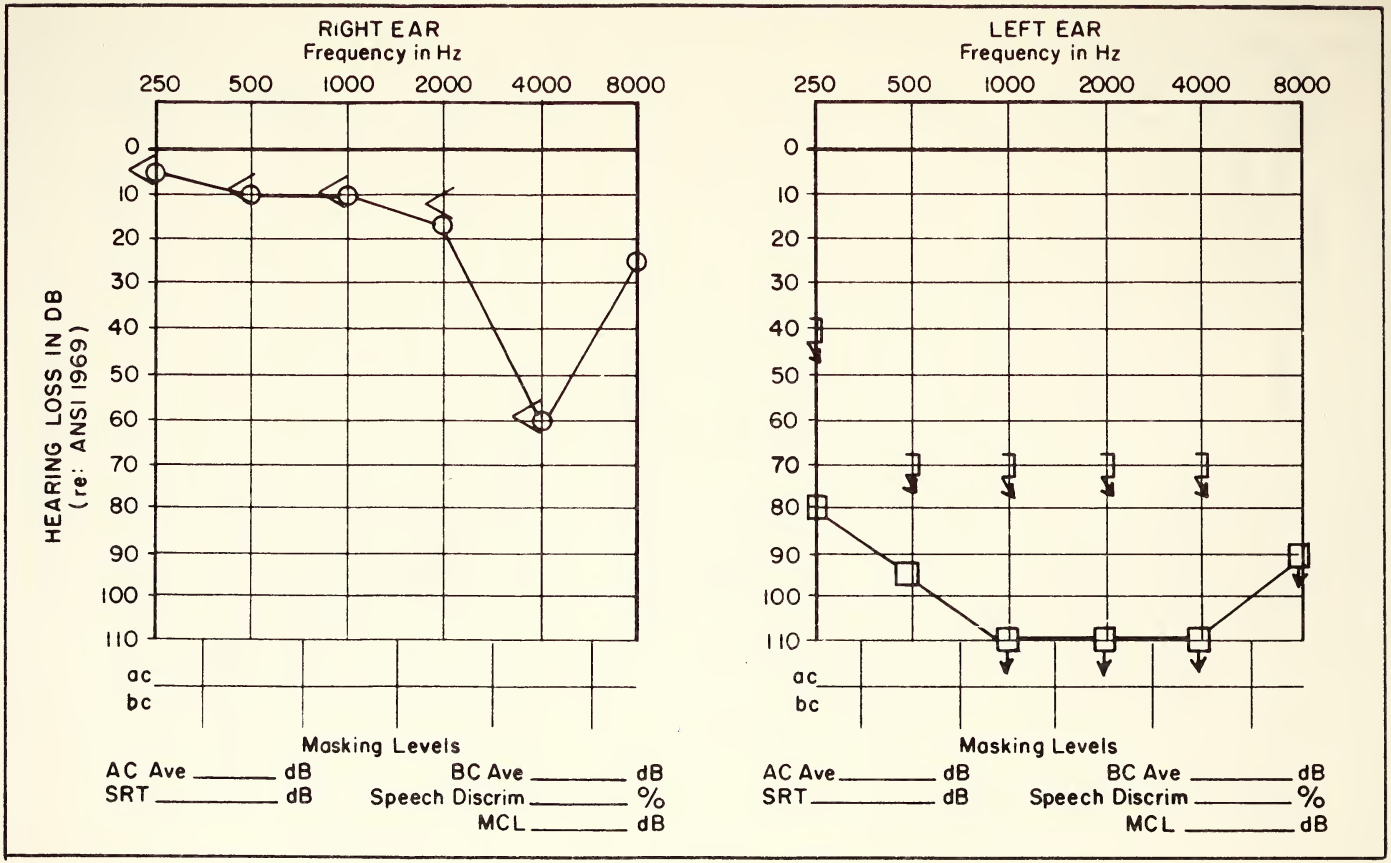


Figure 4. Audiometric Evaluation

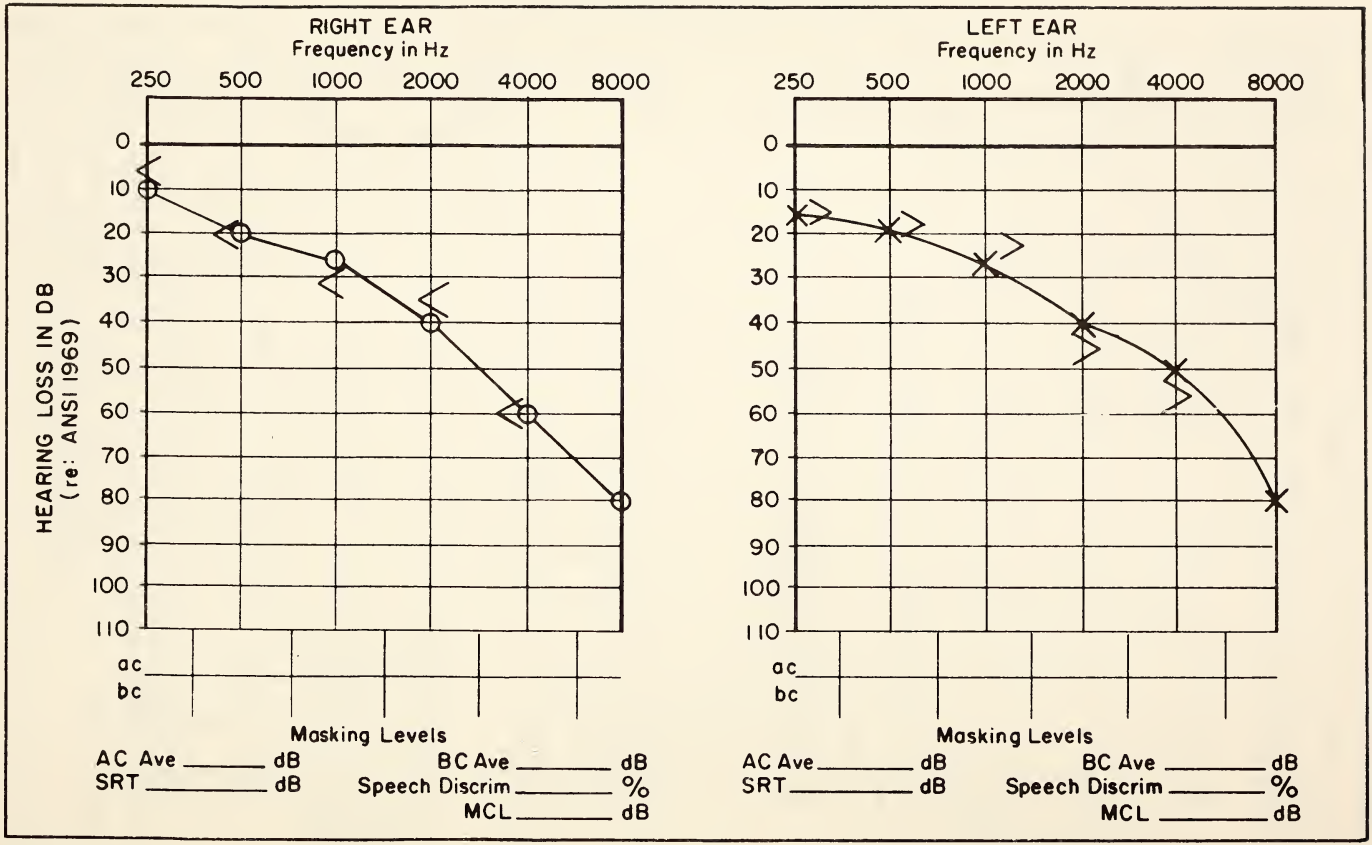


Figure 4. (continued)

Prevalence of Auditory Impairment

Table 3 contains the distribution of the hearing-impaired by region and by rate per hundred thousand population. The information was obtained through mailout questionnaires. The findings of the survey revealed that 13,362,842 people indicated hearing disability. Of these, 1,767,046 considered themselves deaf (could not hear or understand speech), and of this group 410,552 indicated deafness prior to reaching prevocational age (19 years of age). The differences in rate per hundred thousand population by region could not be explained by Schein and Delk. They felt that one major reason might be sampling error.

Table 4 contains the reported causes of deafness based on self-report mailout questionnaires. The reported causes of deafness were largest for the illness category (35 percent), followed closely by those who reported they were born deaf (31.8 percent).

Clearly, auditory disability is a major problem in the United States. Rehabilitation services have not yet reached the majority of persons suffering from auditory disability. One reason for this state of affairs appears to be lack of training among rehabilitation personnel that would allow them to understand and deal competently with the deaf and hard-of-hearing client.

Summary

The ear is an extremely complex mechanism. The variety of hearing disorders, their etiologies, and assessment are equally complex. Perhaps it is partially this complexity that has led rehabilitation counselors to categorize the deaf and hard-of-hearing as among their most difficult clients. More probably, however, it is the communication problem that untrained counselors experience in attempting to work with the hearing-impaired client. If the counselor is frustrated by this experience, imagine the frustration of clients who experience the problem of communication every day of their lives. A discussion of the anatomy of the ear, etiology, assessment, and prevalence does little to express the meaning of auditory disability for those who experience it. Some knowledge of these topics is necessary, however, for those who would be of assistance in helping the hearing-impaired lead a productive and meaningful life.

Table 3
Distribution of Hearing-Impaired Population by Regions
(United States, 1971)

United States and Regions	Hearing Impaired	Deaf	Prevocationally Deaf
United States	13,362,842	1,767,046	410,522
Northeast	2,891,380	337,022	83,909
North Central	3,683,226	541,465	135,653
South	4,280,177	562,756	123,260
West	2,508,059	325,803	67,700
Rate per 100,000 Population			
United States	6,603	873	203
Northeast	5,977	697	173
North Central	6,563	965	242
South	6,807	895	196
West	7,170	931	194

Source: J. D. Schein and M. T. Delk, *The Deaf Population of the United States* (Silver Springs, Maryland: National Association of the Deaf, 1974).

Table 4
Percent Distribution of Reported Causes of Deafness,
by Race and Sex of Respondent
(United States, 1972)

		White		Nonwhite	
Cause	Total	Male	Female	Male	Female
All Causes	100.0%	100.0%	100.0%	100.0%	100.0%
Illness	35.0	35.9	40.9	41.5	31.9
Spinal meningitis	9.7	10.8	8.3	14.1	7.1
Scarlet fever	6.2	5.7	7.5	0.5	5.1
Measles	4.3	4.2	4.5	6.9	2.0
Whooping cough	2.6	2.7	2.2	3.9	4.1
Other illness	13.2	12.5	13.4	16.1	13.6
Accident or injury	7.6	6.9	7.6	13.4	8.1
Birth injury	2.5	2.6	2.2	2.9	4.1
Fall	3.1	3.0	3.7	1.0	1.0
Other injury	2.0	1.3	1.7	9.4	3.0
Born deaf or heredity	31.8	33.1	32.6	19.6	27.1
Inherited	7.6	7.9	8.2	2.9	4.0
Mother had rubella	5.2	6.0	5.0	2.6	3.4
Born deaf other	19.0	19.2	19.4	14.1	19.7
Other cause	7.5	7.8	6.6	5.9	13.2
Unknown	17.1	16.3	17.3	19.6	19.7

Source: J. D. Schein and M. T. Delk, *The Deaf Population of the United States* (Silver Springs, Maryland: National Association of the Deaf, 1974).

The mechanisms and disorders of the eye are as complex as those of the ear and tell us equally as little about the meaning of visual disability for those who suffer it. Such information, however, is equally necessary for those who may have occasion to work with the blind or visually handicapped.

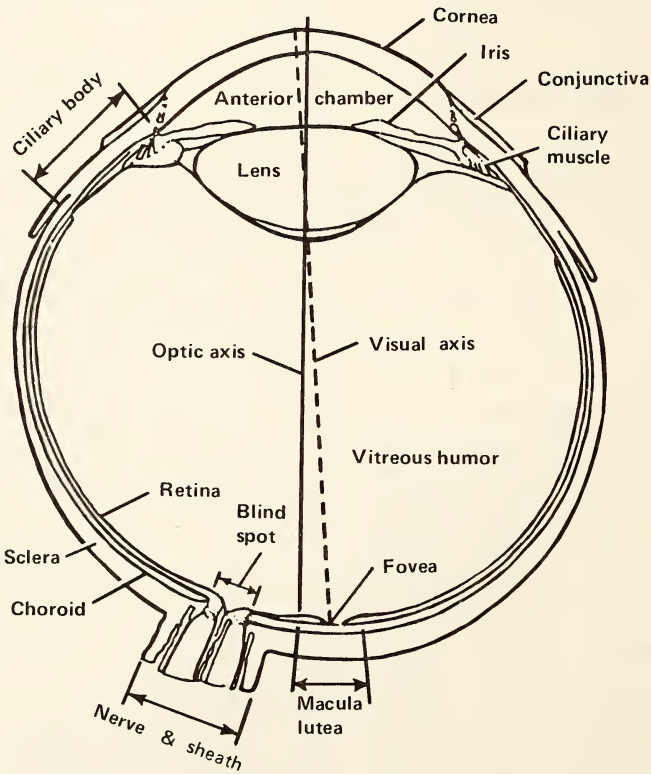
Anatomy and Process of the Eye

In the remainder of this chapter the human eye is discussed — its anatomy and process and the major types and prevalence of visual impairment.

Structure of the Eye

According to Grossman (1973) the outermost transparent covering of the eye is called the cornea, a refractive surface which is part of the focusing apparatus (Figure 5). Clear fluid, also with refractive properties, is located behind the cornea and guides light to an opening of the structure called the iris. The iris is a circular, colored, muscular tissue which governs the amount of light permitted to enter the eye by changing the size of its central circular opening, the pupil. The lens, which is located directly behind the pupil, is a transparent, refractive body which changes the characteristic of light in order to produce sharp images on the retina. Ciliary muscles surrounding the lens either contract the lens for near objects, which increases the curvature of the lens, or relax for distant objects, which flattens the lens. Adjustment of the lens to light for near and far objects is called accommodation, the mechanics of which may be likened to the lens of a camera. The inner eye contains a gelatinous substance called "vitreous," which also has refractive properties. The back of the eye is made up of three layers: (1) the sclera layer, which is a protective layer of cells, (2) the choroid layer, which contains blood vessels and provides nutritive functions, and (3) the retinal layer, which contains light- and motion-sensitive photo receptors (rods and cones). A large percentage of light is focused on the fovea of high cone density and therefore the most sensitive part of the retina.

Rods are most sensitive to the achromatic dimension of light rays, whereas cones are sensitive to chromatic dimensions. There are three types of cones, each sensitive to a wavelength of approximately 430 nanometers (nm), which yields the perception of blue. (Nanometer is a very small measure of length.) A second type is sensitive to wavelengths of approximately 540 nm, which gives the sensation of green. Finally, the third type reacts maximally to light of approximately 545 nm, which yields the sensation of red (Beach, 1973, pp. 33-34). Although both rods and cones transmit



Source: S. P. Grossman, *Essentials of Physiological Psychology* (New York: John Wiley and Sons, 1973).

Figure 5. Horizontal Section of the Human Right Eye

images of movement, rods function primarily under low illumination and cones function under bright illumination.

The function of rods and cones is to convert light energy into neural impulses which are transmitted along neural pathways to the blind spot. This is so named because no light receptors are located at this place on the retina, and therefore there is no "vision" at this point. Rather, this is the point where the neural pathways leave the eyeball on their way to the brain. The final location in the brain which actually reads the impulses as images is called area 17 of the cortex, or the occipital cortex.

The Visual Process

According to Beach (1973, p. 35), "seeing is an active process that involves integration of multiple kinds of information into a unified experience." He stated that this information comes from a number of sources, including visual image, past experience, assumption about the structure of the visual world, and other factors, visual and nonvisual, which influence visual perception. Bearing this in mind, we can look at the visual process and know that it is not the whole story in terms of effective functioning of efficient utilization of sight.

As light enters the eye, the amount of incoming light is controlled by the iris. This structure dilates or constricts to allow more or less light to enter. Light passes through the pupil and the lens, through the vitreous, to be focused on the retina. Focusing is accomplished by the lens accommodating to the distance of the object.

Upon stimulation, the retina transforms the light energy into neural energy or impulses, which are then channeled via the optic nerve to the occipital cortex to be decoded as visual images. The complexity of colors in the world, on the other hand, far exceeds the three primary colors or wavelengths to which cones are sensitive. In order to "see" various other colors, the retinal cells must be connected in ways to allow the brain to "see" these various colors. Patterns of connections become more complex as one moves from the retina to the cortex. The nature of these complex interconnections is beyond the scope of this monograph. If one is interested in reading further on this topic, see Richard

Thompson's *Foundations of Physiological Psychology* (1967), especially chapter 10, "Sensory Processes."

Mechanisms of the eye were once explained by the metaphor of a "photographic camera." This analogy is outdated and incorrect. A better model for the activities of the eye is a television camera (Rushton, 1962). There is no fixed picture on a retina, but rather a complex neural system which encodes and transmits an ever-changing retinal image to the brain. Images are not "still" pictures but a continuous stream of neural impulses. The reason for the continuously changing images is continuous eye movements, which cause the image to be shifted back and forth across the retina. Continuous changes in the neural transmission pattern are sent to the cortex, there to be "reconstructed" into the image. If the images are not shifted across the retina, the image is no longer seen. Some technical equipment can be attached to the eyeball so that one particular image is located at one place on the retina. When an image is stabilized in this manner, the person reports that the image begins to fade and finally is not visible. Thus it seems that nystagmus movements are a necessary component of the visual process (Beach, 1973).

Major Types of Visual Impairment

There are several classes of diseases of the eye. A few of the more common classes are discussed below, according to major etiological categories.

Visual Loss Due to Heredity

Several types of visual impairment are genetically determined. Among these are many disorders due to refractive errors. Below is a list of common diseases.

(1) *Albinism:* Deficiency in the pigment of the eye, poor retinal development, and nystagmus (regular, rapid, involuntary movement of the eye; not the same as physiological nystagmus).

(2) *Hyperopia:* Farsightedness, due to foreshortening of the eyeball, which causes the light rays to focus behind the retina.

(3) *Glaucoma:* Heterogeneous group of ocular disorders characterized by elevation in intra-ocular pressure. If the eye is susceptible, pressure may lead to optic nerve damage and loss of visual field.
(4) *Myopia:* Nearsightedness due to extended eyeball, which causes light rays to focus in front of retina.
(5) *Retinitis pigmentosa:* Night blindness and loss of visual field due to degeneration and atrophy of the retina.

Visual Loss Due to Congenital Problems

Disorders of this classification are typically associated with severe bilateral visual impairment resulting from abnormal growth and development of the eye prior to birth (Zimmerman, 1967). Factors responsible for congenital disorders include bacteria, viruses, protozoa, inadequate diet which affects the neonate, reactions to drugs and other therapeutic agents, and German measles (particularly in the early stages of pregnancy). Below is a list of congenital disorders.

(1) *Cataracts:* Opacity or clouding of the lens caused by changes in the physiochemical state of lens protein
(2) *Malformations:* Any malformation of the eye and its structures
(3) *Ptosis:* Paralytic drooping of the upper eyelid

Visual Loss Due to Inflammatory Disorders

Pathologies in this classification include those associated with cellular injuries resulting from irrigation and infection. These are listed below.

(1) *Keratitis:* Any inflammation of the cornea resulting in lowered transparency.
(2) *Orbital infection:* Any infection of the orbit (cavity in the skull which contains the eyeball).
(3) *Trachoma:* Viral infection of the conjunctiva (eyeball membrane) and the cornea. Infection is considered chronic and contagious.

(4) *Uveitis:* Inflammation of the vascular coat of the eye (choroid, ciliary body, and the iris).

Visual Loss Due to Degenerative Conditions

Visual disorders occurring from progressive deterioration of parts of the eye fall into this classification. Two of the more common types are:

(1) *Cataract:* Any opacity in the lens; commonly associated with increasing age.

(2) *Retinal detachment:* Retina detachment from the wall of the eye. The person sees "soot," lightning flashes, or a curtain going up and down. Blindness occurs if not corrected promptly.

Visual Disorders of Young Children

Aside from common impairments due to refractive errors discussed earlier, amblyopia, which means dim vision due to any cause, is also common to children. Pathologies due to amblyopia are not difficult to diagnose, approximately 2.5 million Americans have these conditions in one form or another. The two major categories of amblyopia are:

(1) *Anisometropia:* A marked difference in the refractive errors of the eyes. Since the macula of the eye does not receive sharp images, it does not develop.

(2) *Strabismus:* Commonly known as squint, crossed, or wall eyes, it occurs when the visual axes are not properly aligned. One eye may turn out, up, or down. If the vision is equal in each eye, it results in diplopia (douple vision) which is intolerable, and the weaker eye is therefore suppressed and does not develop good vision (if not corrected) due to lack of stimulation.

Ocular Tumors

Ocular tumors present not only life-endangering situations, but also lead to serious visual loss. Difficult cosmetic problems are

typically encountered as well. Below is a list of common types of tumors:

(1) *Retinoblastoma:* Typical of childhood, a tumor of the developing retinal elements usually requiring enucleation (removal of the eyeball).

(2) *Malignant melanoma:* Malignant neoplasm arising from cells in the uveal tract which can produce pigment melanen. Usually occurs in adults about the age of 50.

Visual Loss Due to Metabolic Conditions

The conditions listed below are pathologies which occur as a result of metabolic problems.

(1) *Juvenile diabetes and diabetes mellitus:* Diabetes retinopathy which affects ocular structure, retinal vessels and, secondarily, the vitreous

(2) *Hypertension:* Blood vessel spasms, retinal edema, hemmorrhages, and exudates (exuded matter)

(3) *Arteriosclerosis:* Occlusion of the blood supply, which damages tissue

(4) *Retrolental fibroplasia:* A bilateral retinal disease of infants, characterized by disorganized growth of immature retinal tissue due to excessive oxygen given premature babies

Assessing Visual Impairments

Visual impairment is indicated if there is a reduction in visual acuity or a restricted visual field. Both types of impairment occur as a result of a dysfunction in one or more sites of the visual system, or of a malformation of the eye.

Visual acuity or central vision refers to one's ability to discern detail at given distances. The Snellen eye chart is a commonly used measure of visual acuity. It is composed of rows of alphabetical letters of decreasing size, starting from the top down. The height of each letter subtends an angle of five degrees, the width of each limb of the letters a visual angle of one degree. The uppermost letter is such a size that it can be read at 200 feet by the normal eye; then follow rows of letters at 100, 70, 50, 40, 30,

20, 15, and 10 feet respectively. If the patient's sight is normal, her or his acuteness of vision will equal 20/20, expressed as V. = 20/20. If he or she can see only the third line from the top, then V. = 20/70. If some letters are read in the 50 line, but none in the 70 line, then V. = 20/50- or 20/70+. Many people, especially youth, can read the line which should be read at 15 feet or even 10 feet, when placed 20 feet from the chart, thus obtaining V. = 20/15 or 20/10. If visual acuity at 20 feet in the better eye is no better than 20/200 with correction measured by the Snellen chart, the person is considered legally blind.

"Visual field" refers to one's peripheral vision as measured by a tangent screen. With normal side vision, a person whose eye position is fixed straight ahead should be able to detect a moving white object 90 degrees to the side of the uncovered eye. If, however, a person's visual field is restricted to 20 degrees or less, regardless of visual acuity, the person is considered legally blind.

Anderson (1968) described each of the major categories of blindness. His descriptions of each are listed below:

(1) Visual acuity group	Visual ability
(a) Absolute blindness	No light perception. Total visual loss or no visual capability.
(b) Light perception only	Light can be perceived but the direction of the light source cannot be identified.
(c) Light projection only	Light can be perceived and direction of light source identified.
(d) Less than 5/200	Motion or form can be perceived. Fingers can be counted from less than 3 feet.
(e) 5/200 to less than 10/200	Fingers can be counted from 3 feet to less than 10 feet.
(f) 10/200 to less than 20/200	Minimum visual loss or maximum visual capacity to be classified blind.
(2) Blindness due to a restricted visual field	A visual field restricted to 20 degrees or less at its widest point is classified as blindness regardless of the level of central visual acuity. The visual field

	is the area in which a test object can be seen while the position of the eye is fixed.
(3) Unknown	Vision is classified as blindness on the basis of clinical impression when the examiner cannot determine precisely the extent of visual acuity or visual fields.

Both the audiometric examination for the deaf or hard-of-hearing and the Snellen chart for the blind or partially blind represent relatively rough screening instruments. This is especially true of the Snellen eye chart. Complete visual assessment requires an examination by an ophthalmologist, just as hearing disabilities revealed by audiometric examination should be evaluated by a competent otologist or otolaryngologist.

As it was important to distinguish between the deaf and hard-of-hearing as commonly used terms, it is important to distinguish between total blindness, partial blindness, and legal blindness.

Blindness

Total blindness in the sense of complete loss of light reception is relatively rare. The American Medical Association has defined blindness, functionally, as an absence of ability to do any kind of work for which sight is essential. The current criterion for blindness is when vision in the better eye, when corrected, is less than 20/200.

Partial Blindness

Partial blindness covers a wide array of visual problems that result in poor to excellent visual ability. An individual who has lost one eye is partially blind but may have very little problem with most visual tasks. For convenience, some have defined partial blindness as a range between 20/70 and 20/200 on the Snellen chart in the better eye, after correction.

Legal Blindness

The blind have been more successful than most disability groups in achieving special consideration from federal and state sources. For example, visually disabled individuals receive a special exemption on their income tax if they can demonstrate they are "legally blind." Legal blindness is defined as 20/200 in the better eye, after correction. Thus the term "legal blindness" is generally synonymous in functional terms with total or complete blindness.

Prevalence of Visual Impairment

Problems with some form of visual disabilities are not uncommon. According to Duane (1965) approximately 90 million Americans experience visual dysfunction of one type or another. Of these, roughly 3.5 million have permanent noncorrectable defects and about one million are said to be functionally blind (i.e., unable to read newsprint). Of the one million people considered functionally blind, the 1965 estimate is that approximately 430,000 are classified as legally blind.

The following shows the age distribution of the legally blind. The increase in blindness with age can be accounted for by diseases associated with aging such as cataracts, glaucoma, and retinal deterioration (NSPB Fact Book, 1966):

Age	*Percent*
0 to 19	10.0%
20 to 39	13.5
40 to 64	29.5
65 and over	47.2

The major causes of blindness (Table 5) are due to prenatal influences, senile cataract, glaucoma, and diabetes.

Summary

The disorders of vision are even more wide ranging than the disorders of hearing, and those suffering from visual problems appear to outnumber those suffering from hearing disorders. Since

Table 5
Estimated Percentage of Legally Blind Persons, by Cause and Age Group (United States, 1962)

Cause	Total	Under 5	5 to 19	20 and over
Infectious diseases	5.2	3.8	3.9	5.4
Ophthalmia neonatorum (O.N.)	.3	–	.3	.3
Syphillis	2.1	–	.3	2.3
Other	2.8	3.8	3.2	2.8
Injuries	2.9	1.1	2.4	3.0
Poisonings	3.5	14.1	33.3	.4
Retrolental fibroplasia (RLF)	3.2	14.1	33.3	.1
Other	.3	–	–	.3
Neoplasms	1.4	5.0	3.5	1.2
General diseases	20.4	1.5	1.6	22.4
Diabetes	11.2	–	–	12.4
Vascular	7.6	–	–	8.4
Other	1.6	1.5	1.6	1.6
Prenatal influence	16.7	64.6	47.7	13.2
Glaucoma	13.5	–	–	15.0
Senile cataract	15.6	–	–	17.2
Myopia	4.3	–	–	4.8
Other specified	4.6	2.7	1.4	4.9
Undetermined and not specified	11.9	7.2	6.2	12.5
Total	100.0	100.0	100.0	100.0

Source: National Institute of Neurological Diseases and Blindness, *Vision and Its Disorders* (Bethesda, Maryland: Public Health Service, U. S. Department of Health, Education and Welfare, 1967).

their disability is frequently more obvious, the blind or visually impaired are more readily identified than the deaf or hearing-disabled. Nevertheless, most estimates conclude that rehabilitation services are reaching only a fraction of those visually impaired individuals who could profit from such services.

While the hearing-impaired suffer frustration, their frustration frequently stems from the non-obvious nature of their disability, combined with severe problems with communication. In many ways, the hearing population does not view the individual with auditory impairment as disabled, and reacts to the problems of the hearing-impaired with impatience, disdain, and general lack of understanding. In contrast, the frustrations of the blind and visually handicapped frequently stem from the obvious nature of their disability and their severe problems with mobility. An intense degree of sympathy is generated in the general public for those suffering visual loss. The blind are frequently viewed as objects for charity, incapable of performing normally in society. In our sympathy, we are just as punishing to the visually handicapped as we are to the hearing handicapped in our insensitivity.

As with the hearing impaired, the rehabilitation counselor working with the visually impaired must know something of the nature, process, etiology, assessment, and prevalence of visual disability if he or she is to work productively with the client.

3
Psychosocial Aspects of Auditory and Visual Disability

There are two major positions which can be taken in attempting to describe and explain the social-psychological factors associated with most types of disability. One position holds the belief that there is, or should be, a specific psychology of disability. The other holds to the belief that the behaviors of the disabled can be described and explained within a more general psychological viewpoint. We claim the latter viewpoint, based upon the assumption that the primary differences between the physically impaired and the nonimpaired are more a matter of degree and intensity than of kind.

The contents of this chapter are not highly specific to deafness and blindness. It is contended that, while there are specific differences between disabilities, the similarities between them are far greater. Therefore, the presentation to follow provides an overview of the social-psychological factors associated with disabilities generally and deafness and blindness specifically.

This chapter deals with visual and auditory disability from a general psychological and social point of view. The first section discusses, in very general terms, the effects of sensory deprivation. The research literature in psychology suggests that severe sensory deprivation may have serious consequences in terms of learning and personality. Although at this time it is difficult, if not impossible, to apply these research findings to specific problems of the visually or aurally disabled, it is probable that future research will contribute significantly to a better understanding of the problems of those suffering from significant sensory disability.

The second section of this chapter is concerned with attitudes, both as they relate to others' perceptions of the disabled, and as they relate to the disabled persons' perceptions of themselves. To the rehabilitation counselor, few things are as important to successful rehabilitation as the attitudes of the client, the attitudes of others with whom the client must interact, and the attitudes of potential employers. Probably most important, but least examined, are the attitudes of counselors themselves.

The third section of the chapter is concerned with adjustment to disability. The psychological literature on this topic suggests that the processes of adjustment to severe disability are essentially the same for all disabilities, differing only in individual modes of expressing that process. Although considerable effort has been made to associate personality with disability in general, and with specific disabilities in particular, virtually all authorities in the field appear to agree that there is no personality type which can be identified as characteristic of the disabled generally, or of the blind or deaf specifically. Nevertheless, if rehabilitation counselors are to deal effectively with their clients, it is important that they recognize and be able to cope with general problems of adjustment as they occur.

The Effects of Sensory Deprivation

A problem universally common to all of us is that of coping with the environment. It can be assumed that one of the conditions for effective coping is the availability of, and the capacity for, utilizing one's physical senses. Thus the deprivation or the decreased effectiveness of one or more senses creates greater difficulty in coping and adjusting.

Sensorially normal children and adults can exercise all their senses to receive meaningful stimulus input from a number of sources. The types of information necessary for coping can come from reading, observing, listening, imitating, interacting (verbally and nonverbally) and the like. Thus those with no sensory deficits do not experience the overwhelming lack of availability or access to necessary information common to the aurally and visually handicapped.

To gain initial understanding of the psychosocial effects of sensory disability may be difficult unless one has either experienced the disability or has had contact with the sensory-impaired. Perhaps some limited understanding may be gained by reviewing studies which have dealt with sensory deprivation and as these may relate to those individuals whose impairment occurred adventitiously. Prior to the discussion of such studies, however, one must bear in mind that the effects of experimental deprivation are just that: experimental and therefore not necessarily related to effects experienced by the adventitiously impaired. With this caveat in mind, we turn now to a few selected studies. Numerous studies (Benton, Heron, and Scott, 1954; Hebb, 1955; Wexler, 1961) have demonstrated that alteration or blockage of various types of sensory input creates marked changes in physically normal subjects. These studies have consistently suggested that individuals during periods of deprivation may become confused, may hallucinate, or may feel that the deprivation is intolerable and withdraw psychologically. In conjunction with the deprivation, it appears that disturbing effects upon the nervous system also occur (Travers, 1964).

The effects of social deprivation have also been subjected to experimental analyses. Many studies (Gewintz and Baer, 1958a, 1958b; Lewis, 1965; Walters and Kay, 1960; and Endo, 1968) have demonstrated that, following a brief period of isolation from social contact, social praise gained in effectiveness as a reinforcer.

It seems clear from the research cited above that there is an extraordinary dependence of the human organism "on a normal sensory environment for the maintenance of its psychological integrity" (Levine, 1962, p. 294). The findings, however, are somewhat limited in terms of their practical applicability and understanding of blindness and deafness. For it is only the visually and aurally impaired whose disabilities occurred adventitiously and, after some given age, who have pre-morbid patterns of functioning which are altered or affected by sensory deprivation.

The congenitally visually and aurally impaired, or those whose disability onset is prior to the establishment of significant behavioral patterns or characteristics (including memory), have little or no base of prior functioning from which to react. It is difficult, therefore, to assess the exact significance of sensory deprivation. This is not to say, however, that it is difficult to assess

what the direct consequences of deprivation and its cumulative effects are. Perhaps knowledge and understanding of the problem these people encounter may be best brought out by theoretical and empirical work in areas such as cultural deprivation, maternal deprivation, early learning, and enriched versus impoverished environments.

The problem inherent in determining the effects of sensory deprivation notwithstanding, the general conclusion remains that sensory deprivation of congenital or adventitious nature is a deterrent to full development. The student interested in further information concerning the effects of cultural and maternal deprivation is directed to works by Bowlby (1940, 1951, 1958), Helmuth (1970), Williams (1970), and Allen (1970), and most of the recent books on developmental and child psychology. The reader must keep in mind that attempts to apply the literature of sensory deprivation to specific problems of individual rehabilitation clients must be done with great caution.

The direct effects of sensory deprivation on the visually and aurally disabled is only part of the total picture. The second topical area of this chapter, the functional nature of society's reaction to the handicapped, needs to be considered. Specifically, the focus is on society's long-standing and still extant negative attitudes, prejudices, and stereotypic beliefs toward the disabled. Because the effect of attitudes is of greater immediate relevance and importance to the rehabilitation counselor than the indirect implications of sensory deprivation, this second topic will be considered at greater length. One should keep in mind while reading all of the following sections that disabled people, as are the nondisabled, are of infinite variety and have the same hopes, desires, likes, dislikes, and fears as everyone else. To delineate the "typical" disabled person is no more feasible than it is to delineate the nondisabled.

Attitudes toward Disability

Beginning with the attitudes of professionals who work with the disabled, a surprising finding which resulted from studies by Barker, Wright, Myerson and Gorick, and by Scott (Kutner, 1971) is that professionals who work with the disabled share similar

stereotypic ideas with the general public regarding the disabled. In fact, Kutner maintains (p. 145), "there is ample evidence from empirical studies that the disabled are viewed by some as a group to be shunned or feared." According to Scheff (Kutner), stereotyping by professionals has the effect of impairing the treatment process. Wallace (Cull and Hardy, 1972) indicated that many professionals ascribe a good deal of maladjustment of blind persons to devaluating social stereotypes. Kutner adds (p. 155):

> . . . stereotyping within the treatment agency is not limited to beliefs concerning the nature of the disability itself or of any specific disabilities. It may extend to misbeliefs concerning diagnosis, course during treatment, the value of various treatment techniques, prognosis, and final outcome.

Certainly, negative attitudes of professional rehabilitation workers toward their clients will interfere with effective rehabilitation efforts. These negative attitudes are particularly difficult to deal with because they are usually at the unconscious level. It is important that all rehabilitation counselors spend some time examining their feelings toward clients, especially negative feelings, to try to ascertain the source of those feelings. Probably no disabled groups are more poorly understood by professionals as well as the lay public than the visually and hearing disabled.

The general negative perceptions toward the visually and aurally impaired have been empirically analyzed. Common types of feelings toward the blind include antipathy, aversion to social closeness, uneasiness, rejection, imputed maladjustment, incompetence, and conferred special traits. Common types of feelings toward the deaf include viewing the deaf as having attributes in common with underprivileged minority groups and as being less likable (Kutner, 1971).

Attitudes are of such critical importance that they alone can make for ultimate success or failure in rehabilitation, regardless of the satisfactoriness of the rehabilitation process itself. Jaques (1970, p. 4) states the issue well:

> Blindness, deafness, mental illness, and all other labels used to describe disability or deviance exist as discrete entities only in textbooks and classrooms. For in the lives of persons possessing them, such conditions are not separate and distinct parts of a

> person, but permeate by type, degree, and effect the total life space. And for this reason the meaning that deviance has for the person and for those around him — family, peers, and the larger society — is of the utmost importance. This meaning may well determine the extent to which rehabilitation can be achieved, or whether in fact, it can be engaged in at all.

The process of labeling and categorizing large groups of persons (which is basically the function of stereotyping) makes it difficult to realize individual differences. To synthesize large amounts of information into discrete, simple, and easily handled units is a natural tendency for all of us. Such labeling, however, is highly resistant to change, for change disturbs the consonance of one's thought and value systems. Frequently, for example, when one is forced to observe the individuality of a single disabled person, the reaction is, "Oh, but he's different," a response which permits one to avoid creating dissonance in one's established attitudes or stereotypings.

A short review of the literature appears appropriate here, both as background for the rest of this section and as a perspective. Most of the following studies are concerned with personality characteristics as they relate to interaction with the disabled.

Kutner (1971) gives an excellent review of the current research on attitudes toward the disabled, and only the major studies therein are mentioned here. The relationship between attitudes toward disabled persons and attitudes toward minority groups is mentioned, and that antidisabled attitudes are to be found in a wide variety of groups. From the results of several studies, it appears that there are five theoretical approaches to the problem of aversion to the disabled: (1) cultural conformity, (2) low ego strength, (3) authoritarianism, (4) field dependence, and (5) unconscious somatic concern. Authoritarianism was found to be the most valid predictor of negative attitudes toward the disabled.

English (1971) did a multidimensional review of the literature showing a relationship between personality constructs and attitudes toward the disabled. The implied results are that

(1) The persons who are most accepting of the disabled are less aggressive and have higher self-concepts, lower anxiety levels, greater needs for social approval, and greater tolerance of ambiguity.

(2) The better adjusted disabled individuals are typified by more positive self-concepts, being less aggressive and less anxious, and having fewer needs for social approval, and greater tolerance of ambiguity.
(3) Prejudice is confirmed as being a general and pervasive attitudinal characteristic, reflected in a tendency for individuals to reject those they perceive as different from themselves.
(4) Positive attitudes are closely related to close interpersonal contact with disabled persons in personal, social, educational, and vocational settings.

Wilson (1971) did a study with a college student population, utilizing three groups: (1) group one spent a 2.5-hour period engaging with normal hearing person and persons simulating deafness, (2) group two observed a deaf girl attempting to communicate with a non-deaf individual, and (3) group three had no opportunity to experience the consequences of deafness. The results indicated that the group that interacted with the hearing and simulating deafness persons rated the deaf lower than the other two groups. Wilson also tested for anxiety and found no differences among the groups. One major problem with this study, however, may have been with the simulating of deafness, and that the results may have been different had actual deaf persons been used.

Jordan (Kutner, 1971) stated that extent of contact of nondisabled persons with the disabled was not predictive of favorable attitudes, but "perceived enjoyment" and "voluntariness" were good predictors. Kutner (p. 150) also cited a study by Richardson, who reviewed the work done on nonhandicapped-disabled interaction and concluded that "the kinds of people who initiate social relations with him (the disabled person) will be those who hold atypical values, those for whom physical disability cues have low perceptual salience, or those who like others to be dependent upon them."

In an employment study, Ayer (1970) surveyed administrators' reactions to hiring the handicapped. Her findings were that (1) young administrators were more receptive than older ones; (2) the more disabled the individual, the less acceptable; and (3) individuals with a clear indication of a cure for emotional problems were the most favorably considered.

Anthony (1972) did a study and review of the literature of three different ways that researchers have tried to change attitudes toward disabled persons. They were (1) information about disabled persons, (2) experience with disabled persons, and (3) an experience combining both contact and information. He concluded that neither information nor contact alone was sufficient, but that the combination of the two was favorable in creating attitude change. He also stated that similar results were obtained, regardless of the assessment procedure or the type of the disability.

Process of Attitude Formation

As is evident, negative attitudes carry serious implications for the disabled. But, one might ask, what is the process of attitude formation; better yet, why do stereotypes form? We can only hope to scratch the surface of these questions here. McGowan and Porter, in *An Introduction to the Vocational Rehabilitation Process* (1967), used a long quote by Barker and Wright which excellently describes some of the dynamics involved in attitude formation toward the disabled, and most of it is quoted below:

> Devaluation of the disabled: Because of the value which society places on "body-whole" and "body-beautiful" a disabled person has to adjust to certain generally prevalent social-psychological facts. Probably the most far reaching of these is his social status. Often he is regarded by himself and others as inferior, not only with respect to his specific limitations, but as a total person. He may feel shame, inferiority, even worthlessness.
>
> This general devaluation has some parallels with that of racial and religious groups. The Negro or the Jew, for example, are considered by some to be unworthy as human beings, or not acceptable as "100 percent Americans." The disabled too, are seen as an underprivileged minority by many (Barker, 1948).
>
> Not only is the disabled person often considered inferior, but it is also felt that he "ought" to feel inferior, that he "ought to know and feel his place" much in the manner of other underprivileged minority members. This hypothesis, known as the "requirement of mourning," was originally elaborated by Dembo (1948) and her co-workers in a general theory of misfortune. It may not at first seem valid. For one thing, the requirement of mourning implies that men want others to suffer, and this is

ethically objectionable. However, if we consider the following example, we can perhaps get some "feeling-insight" into the probable validity of this hypothesis:

A man takes great pride in being an outstanding community member. He owns the best car, belongs to exclusive social clubs and abides by the most proper social amenities. These are the things he values most highly. It follows, therefore, that he must consider as unfortunate those who lack material possessions and are omitted from positions of prestige. Furthermore, if these unfortunates do not act the part, for example, if they do not envy him and regret their misfortune he must reject and devalue them, for otherwise his own security is threatened.

Similarly, a person who places a high value on physical beauty, strength and skill is under strong pressure to demand that the disabled person mourn his lack of these, deprecate himself, and envy the nondisabled. Such a person must do this in order to maintain physical beauty, strength, and skill as central values upon which his security depends. And, paradoxically, the disabled person may also feel that he "ought" to feel inferior. This will occur as long as his value system remains that of the nondisabled majority, the group to which he wishes to belong and in many cases at one time did belong.

We see that the disabled are confronted with a serious situation because two basic psychological needs of man are the need for self-esteem; i.e., for high self-evaluation, and the need for social status; i.e., for high evaluation by others. For optimal adjustment these needs must be satisfied in some degree.

Whether or not a disabled person devaluates himself, he still has to cope with another important aspect of his psychological situation; namely, insecurity. Many areas of his life may be characterized by a lack of definiteness as to what may happen, an uncertainty as to where he stands with respect to the world about him. The following are three important sources of insecurity:

1. *Physical Insecurity:* The cultural world of houses, jobs, automobiles and cities is devised with the requirements of a broad group of relatively "normal" people in view. For this group, society goes far to structure and define the physical conditions with the expectation of carrying them out. When a physically normal person starts to work he generally knows what is possible and what is impossible for him in the way of perception, physical locomotions, and manipulations, and he knows that within the limits of what is possible he can usually accomplish the day's tasks. He knows that the steps of the bus will be of a convenient height, that the seats will fit him, that the walk from the bus stop will not exhaust him, that the controls of the elevator will be

within reach and that his employer's instructions will be understandable. He knows, in short, that the world of cars, towns, and offices, which society has constructed, is made for his convenience. One can easily imagine the changed outlook of a physically normal person as he started to work if he knew that the steps of the bus might be 5 feet high, that the seats might be without backs, that his office might turn out to be 10 miles from the bus station, that the controls of the elevator might be 10 feet above the floor, and that he might be unable to hear his employer.

This is, in some degree, the position of the physically handicapped person in a "normal" world. In many situations he is faced with a much greater uncertainty than are normal persons as to whether he will be able to carry out the locomotions, manipulations, and perceptions necessary to achieve his purposes. This can be very frustrating and anxiety producing.

2. *Social Insecurity:* In addition to the increased hazards and uncertainties arising from his physical situation, the handicapped person is faced with a similar state of affairs in his social world. The conflicting attitudes of normal persons toward the handicapped have been thoroughly established (Barker, *et al.*, 1946). Acceptance and rejection, sympathy and pity, trust and fear, valuation and devaluation are the rule. This is due partly to ambiguous, unstable perception. The disabled person is seen now as good, now as evil; now as able, now as unable; now as childish, now as adult. The consequence of this is that the handicapped person is inevitably unsure of his reception by others and uncertain of the stability of their attitudes.

3. *Uncertainty Regarding Self:* Finally, the physically handicapped person is faced with greater uncertainty in building a consistent attitude toward himself. He meets the same difficulties others have in forming a stable, consistent attitude toward him. He receives the same ambiguous stimuli as others do when he views his own physique. He, too, must separate his perception of his imperfect person. He is also faced with a conflict between the cultural values concerning physique and those relating the dignity of the individual. He fluctuates between feeling ashamed when the physical values are high and feeling an inner strength when the human dignity values are most potent. Moreover, in the case of acquired disability, his new body image conflicts with that of his former self. (Quoted in McGowan and Porter, *An Introduction to the Vocational Rehabilitation Process,* Vocational Rehabilitation Service, Department of HEW, 1967, pp. 71-72).

There are several aspects of this long quote which deserve comment. For one, Barker and Wright stated that the general

devaluation of disabled persons has some parallels with racial and minority groups. However, as Kutner (1971) pointed out, there are some obvious differences as one does not flaunt a disability — "crippled is not beautiful." Moreover, disabled persons are expected to do everything possible to overcome their handicap. This conflict between a devalued status and social expectation leads to a unique role of the disabled in today's society that has been called "marginal" by Sussman (1966); "status incongruence" by Kelly, Hastorf, Jones, Thibaut, and Usdane (1960); and that of one who has been placed in a "double bind" by Myerson (1955). With respect to the marginal role, Sussman states (p. 145):

> . . . [H]e may be fully accepted as a member of the unclassified open society (especially when his behavior does not reflect his disability) while under other (competitive, social, or physically demanding) conditions he is regarded as incapable, inferior, incompetent or otherwise unacceptable.

Myerson's "double bind" hypothesis states that disabled persons are expected to be uncomplaining, unpretentious, unostentatious, and accepting of their problem; but on the other hand, they are also expected to cope, perform, and overcome. The upshot of these expectations is that the dilemma may lead to overstriving, self-incrimination, hopeless frustration, and emotional breakdown. Finally, the "status incongruence" notion maintains that some of the disabled perform poorly in order to maintain sympathy and special privileges engendered by their disability. The reinforcement here for the disabled is based on the belief that the sick role stance will help avoid negative comparisons with the nondisabled.

What may be another type of double bind situation is McDaniel's belief (cited in Shontz, 1971) that it is necessary to distinguish between attitude toward disability as a somatic state and attitude toward individuals who have the disability. He felt that the latter might be quite positive and accepting, even though the former may be negative. The problem with this viewpoint is that it creates a dichotomous discrepancy between the person and the disability that is inseparably his or her own.

A final point concerning the quote of Barker and Wright worthy of comment is their strong implication that the disabled meet "the same difficulties others have in forming a stable, consistent attitude toward him. He receives the same ambiguous

stimuli as others do when he views his own physique." What is notable by its absence here is a mention that the disabled meet essentially the same ambiguous stimuli concerning their physique and have the same difficulties that others have in regard to their own selves. The essential point is that even the nondisabled may go through nearly the same process as the disabled in adjusting to, and accepting, their own selves physically, mentally, and otherwise.

Attitudes of Parents

Other than from professionals working with the disabled, little has been said about the attitudes of specific groups of people. This is quite intentional, for it is assumed that all subgroups of "the public" generally hold "public attitudes." One group that deserves closer attention, however, is that of the family of the disabled. Particularly for the young child, the attitude of the family has a great impact on the behavioral patterns of the disabled person. Due to the greater impact of family attitudes on the child disabled than the adult disabled, the following discussion emphasizes the attitudes of the family with a young disabled person.

Bauman and Yoder (1966), who have written about the impact of the blind child upon the family, stated that any birth is in itself an occasion of stress for the family, and that adjustments are required. The expectations of eventual fulfillment and happiness, however, are dashed when it is learned that the baby is disabled. Several things may then happen: the child, consciously or not, becomes a symbol of the family's position and ambitions, sustained anxiety, the beginning of years of costly and emotionally disturbing trips to doctors or clinics in search of hope, the feeling of being drained and exhausted (leaving little or no time for affection for the baby or child), strong feelings of shame, guilt and rejection, occasionally to the point that the child is abandoned, strong feelings of inadequacy, and suspicion and blaming behavior. Another result is that sometimes the mother feels so protective that she fails to encourage normal development of self-care, independence in feeding, exploration, and social contacts. The latter is often a reaction formation due to the mother's feelings of guilt and rejection, which she tries to hide by extreme devotion. Occasionally, however, a mother's overprotection is not

the result of a reaction formation, but simply the result of lack of knowledge of how to train a handicapped child.

Farber (1966) believes that the impact of a handicapped child can result in either a "crisis" or an acceptance reaction on the part of the mother, and that there are two types of "crisis" reactions. The first type, called the tragic crisis, is said to occur more likely in families of a higher socioeconomic status. Initially there is a feeling of shock, resulting in what the mother terms a "nervous condition" or a "nervous breakdown." On recovering from the shock, the mother regards herself as handling the situation and being a well person. The second type Farber believes is said to occur more often in the lower socioeconomic status family. The primary characteristic is not frustration, but day-to-day difficulty in coping with seemingly endless problems. A possible result is gradual chronic ill health as an excuse from the responsibilities of coping with a handicapped child.

One direct result of a rejecting or overcompensating attitude of the parents may be the lessened expectations for the disabled child, resulting in lessened achievement and reduced compliance with social norms. A well-known classic example of this is Helen Keller, who was able to literally tyrannize members of her family because they were unwilling to impose controls on a person who they felt was already suffering enough through her multiple disabilities. On the one hand, a parent's unconscious needs to help may result in overindulgence and fostered dependency. Since this can lead to underdeveloped social, verbal, and motor skills, the disabled child may not participate, or even know how to participate, fully with peers, leading him or her to isolation and withdrawal. On the other hand, an attitude which does not permit acceptance and recognition of the realistic limits of the disability can lead to the disabled family member's inability to accept the disability.

In conclusion, it might now be asked what some of the attitudes are that people hold toward blindness and deafness. Spear (1975) conducted a survey of students in an introductory course on the psychology of disability at the University of Utah, and the results appear to be especially pertinent for those to whom this monograph is directed. The class consisted of a wide variety of students from the fields of rehabilitation, counseling, physical therapy, psychology, and speech pathology and audiology. The

students were requested to write statements concerning what they thought were the limitations of deafness or blindness, a sampling of which is presented below. It may be worthwhile to ask whether the statements reflect attitudes, lack of information, or simply misinformation.

(1) Deaf persons can work as boiler workers without harm or interference.
(2) Deafness and blindness tend to bring out the overprotectiveness in other people.
(3) Limitations of the deaf are apparent.
(4) Blindness equals complete loss of sight with no form of light discrimination.
(5) Problem of deafness is safeness from accidents.
(6) Problem of partially sighted is personal appearance.
(7) Blind persons vocationally limited by jobs requiring physical manipulation of machinery.
(8) Deafness is an advantage with noisy kids and places.
(9) Hard-of-hearing persons have no limitations with a hearing aid.
(10) It would be better to lose one's hearing than sight, because one could still survive.
(11) Deafness equals no hearing sensation.
(12) Deaf people can't enjoy Beethoven's [Fifth Symphony].
(13) Deafness and blindness have obvious limitations, but don't categorize.
(14) Deaf can't hear even with a hearing aid.
(15) Problem with deafness is learning to vocalize, if able.
(16) Driving is a problem for the deaf.

Finally, a quote in total from one student seems pertinent here: "I think the major problem for the deaf or the blind person to overcome would be not necessarily adjusting to others, but in trying to get others to adjust to [him or her]. Many people (myself included) react with fear, pity, anxiety, etc., around blind or deaf people. Trying to help others to adjust to them on a social and interpersonal level would be the main social problem for the blind or deaf person."

We have seen that an understanding of the functional aspects of disability can be approached from two major viewpoints: that of the effects of deprivation on behavior, and that of social attitudes. The latter approach appears to hold greater direct relevance

for the rehabilitation counselor, particularly when we realize that many professionals hold attitudes toward the disabled which are quite similar to those of the general public, a factor which weakens the positive effects of rehabilitation efforts.

One of the practicing rehabilitation counselors who was gracious enough to read the preliminary draft of this monograph and make suggestions added some points that are relevant:

(1) Much of the material on attitudes and attitude formation is negative. Individuals suffering from sensory disabilities may or may not have experienced such negative feelings and may or may not devalue themselves. The rehabilitation counselor should not seek for negative attitudes in their clients, the general public, or themselves. A generally optimistic and positive approach to rehabilitation may be the best, although not to the point of naivete.

(2) While material on sensory deprivation can only be applied indirectly to the problems of the deaf or blind, they, too, have an effect on attitudes. If sensory disadvantagement is a major deterrent to adequate functioning, the disabled individual is likely to behave in ways that create unfavorable attitudes. The counselor must be aware of this interaction and help the client overcome behavioral problems which in turn will improve attitudes toward that client (Stewart, personal communication, 1975).

The Problem of Adjustment

To form a baseline for discussing individual problems, we must first ask what "adjustment" is, for it is in relation to adjustment that problems specific to disability exist.

It appears possible that one of the basic problems for the rehabilitation couselor is to be able to define adjustment; for unless the rehabilitation counselor is somewhat objective, the counselor's perception of his client's level of functioning may unnecessarily hinder the rehabilitation process. As was reported above, numerous studies have demonstrated that counselor attitudes are little different from those of the general public. The problem is further complicated by the fact that disability per se

does not result in any discrete or distinct personality or condition (Shontz, 1971). Rather, as Shontz stated (p. 62), "Disability is often better regarded as a condition under which relations among psychologically defined variables are examined, than as a direct determinant of behavior." Further, in terms of adjustment, attempts at resolving internal problems will not be successful without attempts at solving external problems. The reverse is also true.

One of the difficulties in defining adjustment is the term itself. Chevigny (1952) suggests the word "reorganization," to imply that the individual adjusts physically and socially by either organizing or not reorganizing. Reorganization alone is considered adjustment, or attempts toward adjustment, and whether or not the attempt is socially acceptable has nothing to do with the concept.

Lowenfeld (1974, p. 17) suggested that adjustment is "knowing what one *can* do and what one *cannot* do." Adjustment is "largely a process of achieving insight into one's own resources and a willingness to use them [which] must be applied by a relearning of skills in order to restore economic and social adequacy." The emphasis is primarily on the individual who is disabled, and all assistance is supportive in nature. He also stated that all handicapped individuals must make their own adjustment, rooted in a feeling of security and a sense of belonging.

Bauman and Yoder (1966) reviewed Father Carroll's definition of adjustment to blindness, which is easily applicable to aural impairment as well. Carroll used the word "reorganization," as did Chevigny, and stated that the need for reorganization does not mean that there is anything mentally wrong with the person, but simply that the visually (and aurally) impaired person is a normal person under abnormal circumstances. The characteristics of total adjustment are then listed as the attitude which enables the disabled person, in accordance with his or her own individual nature and capabilities, to face the fact of the disability; admitting its severity without minimizing or exaggerating it; to do everything possible to acquire the substitute skills and knowledge needed; to have and to show the same range of emotion as before the disability; to mobilize his or her inner strength round himself or herself, rather than round the disability; to return as a whole personality to the society from which he or she came, becoming an integral part of that society; and not making use of the physical

defect as an escape or defense, or as either treacle or club for those round him or her (Bauman and Yoder, 1966, pp. 20–21). Caroll also cautioned against accepting the "apparent adjustment" which is found among those who tell themselves that the disability is a "minor handicap," and in that euphoric group that the uninitiated call "happy." These people, he cautioned, contain the seeds of explosion.

Fitting (Bauman and Yoder, 1966, p. 42) listed six criteria for judging adjustment. These criteria were developed from a rating study by counselors of client adjustment, and are paraphrased below.

(1) *Morale.* To be well-adjusted, disabled individuals should not be overoptimistic nor pessimistic, but have a realistic confidence in their ability to cope with problems which they may encounter as the result of their disability.

(2) *Attitude toward nondisabled people.* To be well-adjusted, disabled individuals should not reject all assistance of nondisabled people nor become wholly dependent upon them, but must have a wholesome attitude toward their relationship with nondisabled people with whom they come in contact.

(3) *Outlook on disability.* Well-adjusted disabled persons neither reject their disability as inconsequential nor succumb to it as being totally incapacitating, but accept the disability in a realistic manner.

(4) *Family relationships.* Well-adjusted disabled persons neither demand extensive special services from the family, nor do they permit the family to completely dominate them, but they establish the kind of relationship in the family which permit them to share and contribute on an equitable basis.

(5) *Attitude toward training.* Well-adjusted disabled persons do not reject training as being valueless, nor do they look upon this as a cure-all, but they use such facilities to permit them to acquire skills and attitudes which should enable them to live more effectively.

(6) *Occupational outlook.* Well-adjusted disabled persons recognize that their physical disability imposes certain vocational limitations but, at the same time, they do not excuse mediocre performance on the basis that special

concessions must be made to them because of their disability.

At this point, we are ready to consider the forms of reaction to disability that can occur. In order to help ensure its relevancy and relatedness to attitudes, it would be well to keep in mind the comments of three writers.

Sussman and Friedsen (1965) stated that impairment (disability) becomes a handicap only when it is so regarded by others. Seller *et al.* (1965) wrote that a person with a handicap reflects attitudes of self-depreciation and hate because of two reasons: (1) negative attitudes previously focused by a person on a devalued, disabled group may refocus on the self after the onset of disability, with the consequent self-devaluation, and (2) many persons feel uneasy in the presence of a stigmatized person, and their uneasiness is easily picked up by the person who is the focus of their uneasiness. Another importance of attitudes is that all too often the negative attitudes of the public toward the disabled are adopted by, and become, the attitudes of the disabled themselves. Too often the public has a limited view of the capabilities of disabled persons, who in turn accept the limited public concept and do much themselves to make the imagined limitation real.

Reactions to Disability

When the reactions of a person to his blindness or deafness is discussed, there are several precautionary notes to be made. First, there is obviously a difference between the adventitiously blind and deaf and the congenitally blind and deaf. Second, there is the factor of age and whether the person is in school, working, supporting a family, or in a nursing home because of old age. Another is the cause of disability and whether it is expected or unexpected. In the case of diabetic retinopathy, for instance, there may be periods of total sight loss followed by remission; obviously a different reaction would occur (for the same person) who wakes up from sleep with a total sight loss due to a retinal detachment than from a person who loses his sight in a progressive manner due to diabetic retinopathy. Other factors affecting reaction are the person's conceptualization of the disability and its meaning, the education and skills possessed, relationships to family, employer and

peers, and the concept of the body role (i.e., whether it is conceived as a machine tool or an esthetic stimulus for enjoyment).

The experience of loss is not unique to blindness or deafness, and therefore no special counseling theory or theories of adjustment need be formed concerning the blind or the deaf (Hardy and Cull, 1972; Bauman and Yoder, 1966). Severe as the shock of going blind or deaf may be, it is nevertheless a natural one in that the resulting behavior is an understandable one and is related to any extreme stress, and not to blindness or deafness specifically. In any extreme stress situation, it is "personality" which determines the manner in which an individual reacts, personality being defined broadly as "the psychophysical organization of the individual as modified by his life experiences" (Lowenfeld, 1966, p. 15). Briefly, then, blindness imposes sizable practical problems, but does not *produce* maladjustment (Ruskin, 1962; Lowenfeld, 1953), nor is there a special "psychology" of deaf people (Levine, 1960; Canier and Altshuler, 1967; Bolton, 1973).

Before a discussion of the specific reactions to disability, it should be emphasized that not all persons will demonstrate these reactions. Again, the two major divisions are the congenitally disabled and the adventitiously disabled. It is quite possible that the former will demonstrate many of these forms of reaction, but it appears more accurate to view their reactions as attempts at coping which are found in most people, disabled or not. The primary reason for this is that there is no baseline of predisability experience. In addition, the parents, spouses, or others close to the disabled person may demonstrate many of these reactions themselves, resulting in what might be termed a "sympathetic reaction." The specifics of such a sympathetic reaction, however, may be particularly difficult to distinguish from the problems of attitude, stereotypic beliefs, and prejudice which have already been discussed.

Modes of Reaction and Adjustment to Disability

Generally, the shock of blindness or deafness, as any other severe stress, is so harsh as to be resisted and considered unacceptable. Time is a major requirement in the process of accepting the fact of one's disability. In order to cope with the shock, one or more of several defense mechanisms are putatively used in order to

reduce the resulting tension and anxiety. Theoretically, to be effective, the mechanism used must be unconscious. When the mechanism does become conscious, it is rendered ineffective and another must take its place in order for tension to again be reduced to an acceptable level. The following are the major mechanisms said to be used and listed in the usual order of occurrence although, of course, not all may be used:

(1) Denial
(2) Withdrawal
(3) Regression
(4) Repression
(5) Reaction formation
(6) Fantasy
(7) Rationalization
(8) Projection
(9) Identification
(10) Compensation

Cull and Hardy (1971) state that denial of a disability is used to soften the fact of reality. When the fact of the disability becomes so obvious that it cannot be ignored, the individual then denies that the condition is permanent. The continuation of denial will prevent effective rehabilitation efforts, which can proceed only when the client accepts the permanency of his or her disability. The acceptance of the disability itself is a factor which is not to be confused with acceptance of its permanency.

Cull and Hardy also state that rationalization is used by every person in order to accept the fact of blindness, and the same could be said for deafness. Rationalization permits the giving of a socially acceptable reason for one's behavior. He delineates four types of rationalizations:

(1) Blaming an incidental cause (e.g., the careless workman who blames his tools).
(2) Sour grapes: the devaluation of a goal which is denied.
(3) Sweet lemons: the valuating of something which is not wanted.
(4) Doctrine of balances: the balancing of negative with positive attributes (e.g., "I may be blind, but I have a superb memory").

How long the process of working toward acceptance of the permanency of disability takes depends on three major factors (Cull and Hardy, 1971). Each of these factors are elaborated in the following section, but briefly they are:

(1) The factors directly associated with the disability
(2) The factors arising from the individual's attitude toward the disability

(3) The view of the purpose of the body that the individual has

At the basic level, the major sources of trauma when undergoing a severe crisis lie in the discrepancy between what the person has known himself or herself to be and what each becomes. Numerous authors, notably Father Thomas Carroll, have written on the need for a mourning of the loss of sight. Carroll described the situation succinctly (Bauman and Yoder, 1966, p. 18):

> Loss of sight is a [form of] dying.
>
> When, in the full current of his sighted life, blindness comes on a man, it is the end, the death, of that sighted life. This death may be the rapid one that results from accident or from some culminating disease. Or it may be the slow, lingering death to a sighted life that comes with diabetes. The death may come without warning; its onset may be hidden by false hopes or false promises; it may come with a terrifying slowness, inevitably.
>
> However it comes, it is death to a way of life that had become part of the man. It is the end of acquired methods of doing things, the loss of built-up relationships with people, of ingrained relationships with an environment.
>
> It is superficial, if not naive, to think of blindness as a blow to the eyes only, to sight only. It is a destructive blow to the self-image which a man has carefully, though unconsciously, constructed throughout his lifetime, a blow almost to his being itself.
>
> Is it so strange, then, that many people who cannot face this type of dying voice the feeling "I would rather be dead than blind."

Although Carroll wrote directly about blindness, the general concept is applicable to deafness. One major difference between deafness and blindness, however, is the problem with language, particularly for the congenitally deaf. Levine (1975) wrote that when the voice is not heard, neither are words or language, which are unknown symbols which cannot be learned in either the natural manner or at the natural pace. If language remains unlearned, then communication with the world remains profoundly disrupted with profound implications. She quoted Welling (1954) to illustrate this idea:

> If I had the power to forbid you to listen, to speak, to read or to write, I could reduce you in one stroke to intellectual slavery. I could reduce your environment and social structure to that of an animal. I could completely stop the teaching-learning process. I could lock your intellect (Levine, 1975, p. 3).

For the persons who lose their hearing later in life, after acquiring language, the picture is not quite so bleak. Nevertheless, the loss of any communication, a process normally taken for granted, may mean a "dying" in Father Carroll's sense of the word, with a need for accepting the fact of the loss and the creation of a new image of the self.

Lindeman (1966, p. 153) stated that the grief reaction, a part of the mourning process, shows uniformity in both its psychological and somatic characteristics. Characteristic of the reaction are:

(1) Marked sighing.
(2) A feeling of lack of strength.
(3) Digestive disturbances.
(4) A sense of unreality.
(5) Preoccupation with the object of mourning (the lost eyes).
(6) Loss of warmth in relationships.
(7) Actual hostility may be present.

The duration of the process, according to Lindeman, depends upon the success with which the individual does his "grief work." It is necessary for the person to accept the discomforts of his loss and for the feeling to be permitted to work through to whatever show of emotion feels natural to that individual.

Jannis (1966, p. 157) believed that the individual will react to loss or the threat of loss with emotional patterns learned during stress periods in early childhood. When the period of intense stress is over, the individual's emotional reaction will depend largely upon whether the loss is found to be greater than anticipated. He believed, therefore, that it was necessary to do the "work of worrying" before the actual loss occurs, for "the more thorough the work of worrying, the more adequate the subsequent adjustment to any given type of changes or deprivation" (p. 158). The basic technique that Jannis expoused in guiding a person doing the work of worrying was to present well-balanced communication with respect to two general types of content. The first is fear-arousing statements designed to evoke a mental rehearsal of what the disability is like, thus reducing the fear and ambiguity of what the actual crisis will be like. The second content area is fear-reducing statements which realistically describe the mitigating aspects of the threat, including the help from authority figures that can be expected and the things that the person can do himself or herself.

That a disabling condition presents strong feelings of anxiety is hardly debatable. Heathers (1966, p. 187), writing on the aspects of dependence, defined two major types of dependence, both of which may occur during the crisis situation of going blind, as well as in other crises situations. First is instrumental dependence, in which the responses of others are a means to an end, individuals learning to do things for themselves. Second is emotional dependence, in which the responses of others are the ends sought. Emotional dependence — reassurance, affection, approval — are important in reducing the anxiety of the individuals to the point where they can begin doing things for themselves. A crucial part of Heathers' viewpoint is that the individual necessarily experiences a great deal of frustration in learning to cope, and that he or she must develop a "frustration tolerance" as a crucial aspect of gaining instrumental independence. Heathers also believes, similarly to Jannis, that an important part of how an individual meets and copes with stress is a function of his or her prior preparation for the stress situation.

Until now, a significant aspect of reaction and adjustment to stress has been ignored: that of the body image or body role of the individual. Cull stated that there are two aspects — the *ideal* and the *actual* body image. The greater the disparity between the two, the greater the maladjustment. The process of blindness or deafness is that, pre-morbidly, there is essentially a congruity between the two aspects. Following the onset of the disability, however, there is an essential incongruity between the two for the newly blinded or deafened person, as the actual body image is one of reduced sight or hearing, whereas the ideal image is one of sight or hearing. This is essentially where the process of mourning takes place — the mourning of the idealized image as a sighted or hearing person and the refocusing of a new idealized image as a blind or deaf person. Denial and rationalization also take their obvious place here, denial being used in the earlier stages when there is a great incongruity between the two images, and rationalization occurring as an aid in shifting toward the idealized image as a blind or deaf person.

Related to the changing ideal and body image concept is that of a change from viewing the disability anatomically to viewing it functionally. Cull and Hardy (1971) state that the client should begin to gain an appreciation of the abilities he has left

(functional) rather than classifying himself solely on the basis of an anatomical loss. Again, it can be readily seen where the defense mechanisms of denial and rationalization play a crucial part in this process.

There are several other theories concerning the reaction and adjustment process. The interested reader is referred to the brief review of these theories by Shontz (1971). Heathers (1966) also lists several methods of dealing with anxiety which can also easily be applied to the theoretical reaction and adjustment process.

Father Thomas Carroll, one of the most significant figures in rehabilitation work with the blind, described the onset of blindness as a series of basic losses. Psychologically, he sees the losses as consisting of several parts. First is that of the loss of physical security, which is the loss of the person's physical integrity or wholeness. Second is the loss of confidence in the remaining senses. He describes how blinded persons, having lost the means by which people usually verify the impact of the other senses, lose their sense of confidence in the impact they receive. Loss of reality contact with the environment is another related, but separate, aspect. Sighted persons have learned to depend on sight to fix an orientation and relationship to their environment; the newly blinded person loses the rapid *concrete* contact with reality, and it appears as if things around him are no longer there.

What is called the "loneliness and emptiness of a visual silence" refers to the fourth aspect, the loss of visual background. By this, Carroll meant the loss of the unconscious visual background. Such a background provides distraction, diversion, and change and provides a not fully conscious kinesthetic pleasure. The last aspect is the loss of light security, which occurs only in the relatively few blind persons who are unable to distinguish light from dark. One of the major connotations of this aspect is the vast number of language references to "lights out," meaning loneliness, lovelessness, insecurity, and being cut off from others that they are dependent upon. Another connotation deriving from the public concept is that the blind really do live in darkness, the total meaning of the gloomy concept often overwhelming the person.

It is hypothesized that it may be helpful to view the reaction to disability as having two stages, a conflict stage and a frustration stage. The two terms "conflict" and "frustration" are not entirely separable, of course, nor do the two phrases ever occur in strict

distinction. Nevertheless, frustration can be considered as a general term characterizing the post-crisis period of blindness. Conflict, on the other hand, can be considered as characterizing the actual crisis stage reaction to blindness, and before resolution of the crisis begins. This distinction is extremely simplified, and is used here only to help illustrate the process of adjustment. To exemplify further, the crisis stage is that period of time when the individual is grappling with a new world of feelings, inner tension, and changes within herself or himself. The frustration stage, on the other hand, is the period beginning after the individual has been able to begin the process of internal reorganization of self and begins to learn how to live and work with it in terms of other people. The first period is inner focused, and the second is an outward focus.

Maier (1966) in experiments with rats, has drawn some conclusions which appear relevant to the above crisis-frustration distinction. Rats forced to take action, every choice threatening punishment, frequently fell to the floor in convulsions. Their behavior, reflective of neurotic humans, tended to last for long periods of time. Under less severe conditions, Maier believed, there are four classes of behavior that may occur either singly or in combination: aggression, regression, fixation, and resignation. Maier asks the question of whether a person, blinded, perceives all the choices open to him or her as being negative. The emotional tension surrounding opportunities presented to the person may be so great as to preclude success, regardless of the actual fact that success is possible. In other words, the expectation and fear of pain or failure may be great enough to create a serious obstacle to any rehabilitative success without first attempting to satisfy that person's emotional needs. Pervin (1966, pp. 186-87), from shock experiments, has suggested that since surprise may be so unpleasant and since correctly predicting what will happen can be so important, people will try to make their predictions come true, including that of failure. He stated that blind persons may do this in one of two ways: (1) denying or truly failing to perceive those elements in any situation which do not bear out their prediction, or (2) managing one's own behavior so that the prediction does indeed become a reality.

Summary

Several topics have been reviewed in this chapter, all of which interact with each other in a stunning array of complexity. The direct effects of blindness and deafness, the myriad problems of social and self-attitude, and the diverse means of reacting and coping all serve to mark each individual as unique. There are general patterns, to be sure, and these are what have been discussed. And there are some aspects which may be common to large numbers of people, but rehabilitation has always been marked by its individual approach to clients. This is clearly the best approach to individuals suffering from auditory or visual disability.

4
The Rehabilitation Process

In a previous chapter, the nature of auditory and visual disability has briefly been described. It has been shown that these sensory disabilities are widespread and impose serious medical and functional limitations. The psychosocial aspects of both disabling conditions have been described as well. Clearly, those professionals working with either the visually disabled or the hearing-impaired are faced with problems that include the medical, psychological, social, educational, and vocational adjustment of their clients.

Perhaps fortunately, most professionals do not need to consider all of the problems of the visually disabled and the hearing-impaired. The physician rarely deals with problems beyond the medical, the teacher with problems other than educational, and the psychologist with concerns beyond those revealed by tests. The rehabilitation counselor, on the other hand, is required to consider the total functioning of the client in pursuit of the goal of helping the client achieve a level of maximum functioning in all areas of life. To be sure, the rehabilitation counselor may use other professionals to assist with the rehabilitation of his or her client, acting in partnership with clients themselves.

The complexities of the problems of severe hearing or visual disability suggest that special training and experience is required to work effectively with clients suffering from these disabilities. Nevertheless, all rehabilitation counselors, whether expert or not, will have occasion to work with visually disabled and hearing-disabled clients. Sometimes the work may be little more than

referral to better trained colleagues with specialized case loads. On other occasions, when the visual or auditory disability is considered secondary to some other disabling condition, or when counselors are working in rural and isolated areas, they may find themselves obligated to take major responsibilities for clients with only consultative help from specially trained colleagues. Thus it is important that all rehabilitation counselors become cognizant of the rehabilitation process as it applies to visual and auditory disability.

Particularly important, either for referral purposes or for purposes of guiding one's own clients through the rehabilitation process, are the special problems of evaluation posed by clients with severe sensory disability. Since referral will often be involved in the process, it is also important that rehabilitation counselors be cognizant of effective referral methods. The goal of rehabilitation counseling is most often vocational. Thus the rehabilitation counselor must be expert in vocational counseling and should be aware of the special problems involved in vocational and educational counseling with the visually and aurally disabled.

The Process

Rehabilitation is defined as "a process of restoring the handicapped individual to the fullest physical, mental, social, vocational, and economic usefulness of which he is capable" (McGowan and Porter, 1967, p. 4). It has been observed that many handicapped individuals have never had an opportunity to achieve their potential in society, and that for such individuals "habilitation" may be a better term than "rehabilitation." The definition of habilitation follows that of rehabilitation, except for the word "restoring." In the case of habilitation, the word "assisting" is more appropriate. As is usually the case in the professional literature, we will use the term "rehabilitation" to refer to both rehabilitation and habilitation, although the distinction is an important one. In the case of the congenitally deaf or blind, habilitation is more frequently called for than rehabilitation.

Whether we are talking of habilitation or rehabilitation, the key word in the definition is *process*. Rehabilitation starts with an individual who occupies a position that is unsatisfactory vis-à-vis

society and the individual's potential in regard to the society. In the case of the visually disabled or the hearing-disabled, the major reason for their unsatisfactory position in regard to society is usually related in a primary way to their specific sensory disability, although it may be that psychological, social, educational, economic, or other problems associated with the disability are more effective barriers to rehabilitation than the disability itself.

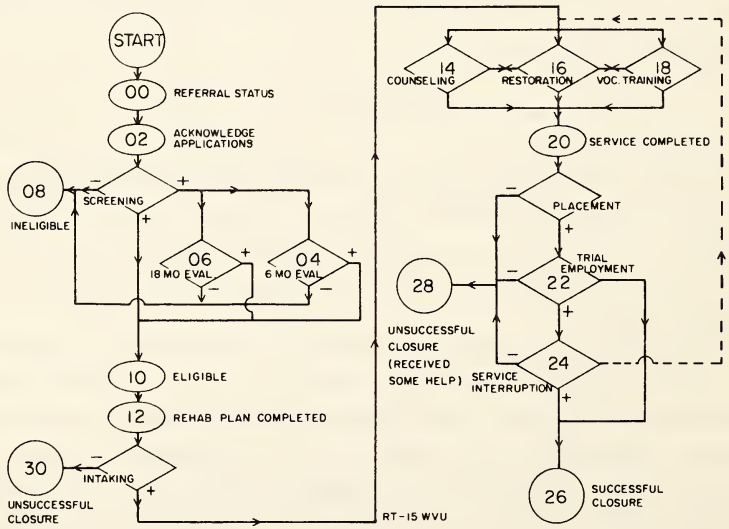
For the process of moving from an initial stage of unsatisfactory status in regard to the society to an ideal state of achieving full potential in regard to that same society, there should be a sequence of planned, orderly services designed to meet the rehabilitation needs of the individual. Leary and Tseng (1974) have provided a graphic representation of the rehabilitation process as it applies to state rehabilitation agencies.

While the Leary and Tseng representation of the rehabilitation process is specific to the state-federal program of rehabilitation and, thus, status numbers and some specific terminology may not be relevant to counselors not working in the state-federal program, the flow chart they have developed seems to be a good description of the rehabilitation process in whatever setting it is practiced (Figure 6). All circles in the chart, except for the starting point, represent possible exit points in the rehabilitation process. All diamond-shaped points in the chart represent important decision points, and all oval-shaped points represent important activities related to decision points. The plus (+) and minus (—) signs refer to positive and negative decisions. The arrows indicate direction of movement through the process, and the broken lines indicate rerouting.

Thus the process starts with referral of the client. This referral may be from a wide variety of community sources or it may represent a self-referral. The first important decision point is in regard to eligibility and feasibility for rehabilitation services. At this point, the counselor must make an evaluation of the client and determine if the client's disability is significant enough to warrant services and if the counselor, or the agency the counselor represents, possesses the skills and services necessary to rehabilitate the client. In the state-federal program, the evaluation may take up to eighteen months of special medical, prevocational, or educational evaluation. During this time rehabilitation is moving forward, but the agency and the counselor need not make a final

decision concerning the client's eligibility for services until the end of the eighteen-month period. Counselors in other rehabilitation settings may not have this advantage. It is at this first decision point that referral may take place to a different and more appropriate agency or to a specialized case load in the same agency. Other possible outcomes at this first decision point are to decide that the client is not sufficiently disabled to require services and to drop the case or to decide that the agency and the counselor have the skill and facilities to continue to work with the client to the completion of the process.

Careful information gathering and evaluation is critical at the initial decision point in the rehabilitation process, whether it leads to referral, dropping the case, or a decision to continue with the client through the rehabilitation process. If the latter decision is made, further decisions in the rehabilitation process will be based



Source: P. A. Leary and M. S. Tseng, "The Vocational Rehabilitation Process Explained" (*Rehabilitation Tomorrow*, January-February, 1974).

Figure 6. Flow Chart of the Rehabilitation Process

in part on information and evaluations gathered at this initial stage. However, impressions, judgments, or diagnoses reached at the initial stage will need to be reconsidered by both the counselor and the client at each subsequent stage in the process, and new information will be gathered throughout the process. While initial evaluation is very important in the rehabilitation process, judgments based on this evaluation must be considered as highly tentative and subject to revision in the light of new information.

While counselors not expert in the field of visual and hearing disability may not work with the client beyond this initial point — or if they do will do so with support and consultation from more skilled colleagues — it is important to consider briefly the flow of the process represented by the Leary and Tseng chart. From the initial screening, the process moves to the development of a rehabilitation plan designed to lead to the goal of realizing the client's potential in the society of which he or she is a part. This plan may undergo many revisions through the rehabilitation process, but serves to keep both client and counselor focused on the ultimate goal of rehabilitation.

Services are provided which may include counseling, medical or social restoration, vocational or educational training, and ultimately placement in a vocation. Follow-up services in support of placement are also provided. Throughout the process, there are points at which decisions may be made to terminate the client if the rehabilitation plan becomes nonfeasible or if placement is impossible. It should be noted that in the state-federal program of rehabilitation, vocational placement broadly defined is the legally determined criterion for success. Feasibility for services must be determined in light of this criterion. Also, throughout the process the possibility exists for rerouting the client back through evaluative, counseling, restorative, or training processes if these seem necessary to successful rehabilitation.

Since the primary goal of the rehabilitation process is to assist disabled individuals to become self-supporting, rehabilitation agencies attempt to provide services other than those of the counselor directly to persons who need them. Thus the counselor will be heavily involved in the provision and coordination of services by other professionals and facilities. While special knowledge and skill may be required to guide the visually handicapped or the hearing-impaired client through the complete process as briefly

described here, the rehabilitation counselor who does not possess this knowledge or skill will still need to be aware of the special problems imposed by visual or hearing disability. The counselor probably will need to gather preliminary information concerning the client even if referral to more expert colleagues is to be made. The counselor must make referrals in such a way that the client is aware of the need for referral, agrees with it, and is assured that the referral is in his or her best interests.

In some cases, the client may remain on the counselor's case load although the primary task of guiding the client through the rehabilitation process is turned over to another counselor or agency. In this case, the counselor must cooperate and assist in the rehabilitation of the client and will remain an integral part of the process of rehabilitation. It seems especially important, therefore, that counselors know something of the special problems involved in gathering client information, the process of referral, and the availability of special services and facilities.

Gathering Client Information

In the state-federal program of rehabilitation, data concerning the client must be gathered initially to determine eligibility for services. As noted in the previous section, this process of data gathering may take up to eighteen months in the case of severely disabled and difficult-to-evaluate cases. During the period of evaluation, rehabilitation services are being performed, but final determination of whether to follow the case through the entire process is delayed. In extended evaluations, information gathering is part of the rehabilitation process, and the client's performance in regard to the process is a source of information. Thus there is constant interplay between gathering information, using the information in rehabilitation efforts, and reviewing plans and diagnoses on the basis of performance. The information thus becomes a source of hypotheses; the hypotheses are tested in action and revised on the basis of performance.

Rehabilitation counselors, whether they work in the state-federal program of rehabilitation or not, will be well advised to approach information gathering with their clients in the same spirit of hypothesis testing. This is particularly true with the often

complex problems of evaluation presented by persons suffering from serious visual or hearing disability. All sources of data represent problems of reliability and validity. Information must be accepted only in a tentative fashion, checked, validated against other sources of data, and tested and revised in the light of performance.

The major sources of client data include: the intake interview, medical diagnoses and reports, psychological or psychiatric evaluations, vocational and educational evaluations, and reports or evaluations from other agencies or professionals.

The Intake Interview

The intake interview may be conducted at the counselor's office or at the client's home. During the interview, the counselor informs the client of the purpose of the agency he or she represents and the types of services the agency offers. The counselor, in this initial interview, attempts to obtain from the client information regarding his or her general problems, specific problems, personal feelings about the problems, and the types of assistance the client feels are needed. Authorities in the field of counseling uniformly agree that the initial interview is the most important interview in the counseling process because it is at this juncture that an effective counseling relationship is or is not established. Despite the importance of this initial interview to counseling, only the information-gathering opportunities provided by the interview will be discussed here. Suffice it to say, the manner in which the intake interview is carried out may be crucial to the success of subsequent rehabilitation activities.

Disagreement exists between the advisability of conducting the initial interview in the client's home or in the counselor's office. A visit to the home yields significant information of the home environment, including the client's position in the family and the degree of support the client may expect from the family. On the other hand, the client may not be as free to discuss feelings and desires in the presence of family members. In any case, a home visit by the counselor is an essential and important source of information which should be gathered early in the process. In the case of severe visual or hearing disability, overprotection by family

members is frequently a problem. In the case of the hearing-impaired, family members are frequently required as interpreters. This is especially the case when the counselor has little or no training or experience in communication with the deaf.

The manner of gathering information in the intake interview is important. Many agencies use a structured interview form which must be filled out either by the client or the counselor. Some counselors feel such forms inhibit their ability to relate to the client in an effective manner. Sometimes the counselor leaves the form with the client to be filled out and submitted at a later date. Other counselors feel that the way in which a client responds to questions on the form when asked by the counselor is an important source of information. In addition, they believe the form serves as a useful format for the intake interview and can be filled out unobtrusively in a manner which does not inhibit the free flow of information.

Regardless of the setting or the procedures, the following information should be collected very early in the evaluation process, probably during the intake interview. The data should be checked, expanded upon, and validated in subsequent interviews through the rehabilitation process:

(1) *Identifying data:* Includes relevant demographic data such as name, place of birth, age, nationality, and marital status

(2) *Referral:* Source and reason for referral

(3) *Present illness:* Includes a history of the present disability, along with the date of injury or onset of the disability, the client's description of the disability, how the disability has affected the client personally, socially, vocationally, and so forth

(4) *Previous medical history:* Includes types of disabilities, dates of occurrences, whether hospitalization was required, names of attending physicians, and the client's written permission for release of past medical information

(5) *Early life and cultural climate of home:* Includes information regarding childhood, perceptions of early family relationships, living conditions, and the background of family members

(6) *Education:* Includes information on the level and type of education of the client, significant illnesses or injuries

which impeded educational progress, school grades, and permission to obtain other academic information

(7) *Work history:* Includes information on work history, types of relationships with colleagues and supervisors, future vocational ambitions and interests

(8) *Present family relationships and economic situations:* Includes information on the nature and quality of relationships to family members and, if married, physical and emotional conditions of family members and client's ambitions for each

Medical Information

Although some medical data will be obtained in the intake interview, medical diagnoses and medical reports will be required. As indicated above, releases will need to be obtained from clients in order to obtain records of past medical examination and treatment. In addition, the counselor will probably desire new medical evaluations in order to update and validate the intake information.

Medical data are obviously important to establish the etiology of the hearing or visual disability, the prognosis for change, and especially the functional limitations imposed by the disability. These types of data can only be obtained by specialty medical examinations which should be arranged for by the counselor. In addition to specialty examination, the counselor may wish to obtain a general physical examination. This will be especially true with clients who appear to have problems beyond the strictly visual or auditory. Medical information is essential to determine whether the disability can be affected by medical treatment. Additionally, the information permits a realistic basis for arriving at rehabilitation objectives, and allows one to gain a better understanding of the client's physical strengths and weaknesses.

Reports from Other Agencies

Many physically disabled individuals, including those with visual and auditory disability, have been served in some capacity

by a variety of social agencies. Therefore, during the intake interview, the counselor should try to ascertain what agencies have served the client and ask the client to allow the counselor to request reports from such agencies. Most rehabilitation agencies have a request for information form which must be signed by the client. In any case, information concerning the client from other agencies should rarely, if ever, be obtained without the client's permission. To do so violates the client's rights to confidentiality of information. It is important for counselors to remember that information concerning the client belongs to the client, not to the agency or the counselor whom the client has trusted to gather that information for his own (the client's) benefit. This fact should also be borne in mind when releasing client information to other agencies interested in the client's rehabilitation.

Information from other agencies relative to the client can usually be obtained if the client is helped to understand that such information will assist in his or her rehabilitation. Information from educational institutions, social welfare agencies, other rehabilitation agencies, and so forth, can be a rich source of data, important to the client's rehabilitation.

Psychological Evaluation

A thorough psychological evaluation involves the utilization of information regarding the client's past and present behaviors. Client data from many sources (e.g., initial interview) must be obtained in order to assess the individual's total psychological functioning.

An important source of information about the client can be obtained through the use of psychological tests. It is well to bear in mind that psychological examination of the aurally and visually disabled should only be conducted by experienced and competent examiners since such assessments call for skills above and beyond that required for routine testing (see Levine, 1975, for a thorough discussion of the required competencies).

Testing has been under attack in recent years on several grounds. The first is that they are not relevant. Some tests used for admission purposes to training institutions or for screening purposes by employers have been attacked as not measuring the skills

necessary either for success in the profession for which the person seeks training, or for the job in which the person seeks to be employed. The second is that they constitute invasions of privacy. Some tests, particularly so-called personality measures, ask very personal questions that have questionable validity in the eyes of many critics. The third, and probably most important, is that tests are valid, if at all, only for a particular group, the group on which the test is standardized. This third criticism of tests is particularly relevant to their use with visually or aurally disabled clients, and is discussed below. The decision whether or not to use tests at all must be left with the professional counselor. They can yield helpful information if used cautiously and in combination with other sources of data. On the other hand, they can mislead and confuse.

It is essential at this time to examine the basic assumptions underlying most standardized tests. According to Myerson (1963) and McGowan and Porter (1967) the main assumption underlying standardized tests is that all individuals (within a given group) have had similar past environments and that all individuals in a particular group have had an equal opportunity to learn.

Clearly, impairment of the auditory and visual modalities can do violence to the assumptions stated above. For the hearing impaired, deprivation of the linguistic tie to the environment creates serious testing problems. In this regard, Levine's (1975) comments are highly cogent:

> The root difficulty in psychological examination lies in the fact that for deaf adults there are no mental nor personality tests devised for their distinctive psychological environments nor standardized on their unique life experiences. In effect, this is an "unstandardized" population with which examiners are obliged to use hearing-standardized tests in the absence of more appropriate instruments (p. 17).

Similar comments would also apply to individuals with visual problems. Deprivation of visual input affects the development of visual concepts such as spatial relations and color. Equally important is the fact that access to written information is difficult and typically requires the visually impaired to resort to other means such as braille, materials printed in large type, readers, or taped materials.

However, the disabilities do not uniformly affect each member of a group in question in the same way. Variations within groups are to be expected. According to McGowan and Porter (1967) variations regarding experience and knowledge are a function of "severity of loss, age at onset, limitations of movement, degree of withdrawal from the environment — physical or psychological, and family attitudes (p. 69)." One might also add that child rearing methods (i.e., consequences of various types of parenting), access to and availability of remedial or habilitation services (e.g., speech training) and quality of instruction regarding services are also important factors to be considered. Thus, the extent to which test assumptions are violated or considered reasonably adequate for a given client must be based on the counselor's knowledge of the individual's past and present history.

Generally speaking, the tests selected for use with the hearing disabled are those which assess non-verbal as opposed to verbal abilities. There are exceptions, of course, and these exceptions depend upon such factors as the primary mode of communications (oral or signing), examiners proficiency in signing and the availability of an interpreter. Some of the commonly used tests for the aurally impaired are listed below (see Appendix C for a more complete description):

(1) *Intelligence tests:* Usually consist of one or more of the following: WISC Performance Scales, Arthur Point Scale of Performance Test, and the Leiter Intelligence Test

(2) *Personality tests:* Rorschach, Thematic Apperception Tests, and the Minnesota Multiphasic Personality Inventory

(3) *Visual perception tests:* Bender-Gestalt, Graham Kendall

(4) *Vocational interest tests:* Strong Vocational Inventory, Kuder

(5) *Vocational aptitude and skills tests:* General Aptitude Test Battery; Minnesota Paper Formboard; Crawford Small Parts, Dexterity; Minnesota Clerical Aptitude

Levine (1975) lists guides for assisting in interpreting a client's history, the same guides appear useful for test interpretation and recommendations regarding vocational goals and objectives. The guides are reproduced in their entirety:

(1) A deaf client is of at least average mental ability if history shows a true reading achievement level of 4th grade.

(2) A deaf client may be of at least average mental ability even if history shows a reading level below 4th grade.

(3) A deaf client is probably of above-average mental ability if history shows an arithmetic achievement score of 6th grade no matter how low his reading level.

(4) A deaf client presents a good intellectual and adjustment picture if history shows good vocational, domestic, and social functioning regardless of test scores.

(5) Where history indicates a client's inability to speak or read the lips, he may nevertheless be of any intellectual or scholastic achievement level. Oral communicative inability is no reflection on mental ability or linguistic achievement.

(6) Where history indicates a client's inability to speak or read the lips is present in youth and adulthood, remediation in these areas will not result in significant gains.

(7) Where history indicates that the causes for long-term, stubborn learning negativisms and disabilities are to be found in such factors as brain damage, deeply rooted psychological disorders, or adverse and inappropriate school experiences, spectacular remediation gains are not to be anticipated (page 22).

Many of the tests administered to the hearing-impaired are also administered to those with visual impairment. While verbal ability tests are emphasized, nonverbal ability tests, if test materials lend themselves to tactile discrimination, are also given.

Following is a list of the more commonly used psychological tests for the visually impaired:

(1) *Intelligence tests:* The Wechsler Adult Intelligence Scale, Haptic Intelligence Scale for the Adult Blind, the Stanford Kohs Block Design Test

(2) *Personality tests:* Rorschach and Thematic Apperception Test (provided there is vision), Sentence Completion, Minnesota Multiphasic Personality Inventory

(3) *Vocational interest:* Strong Vocational Inventory Blank; Kuder

(4) *Vocational aptitude and skills:* The Vocational Intelligence Scale for the Adult Blind; Factual Reproduction Pegboard, Minnesota Rate of Manipulation, Crawford Small Parts

Client Referral

It has been stated several times in this monograph that special training and skill are necessary for rehabilitation counseling with the visually disabled and the hearing impaired. Thus referral to more expert colleagues will usually be required of counselors who do not possess these special skills, perhaps after the intake interview and a period of preliminary client evaluation have been performed. Even in the case where it appears appropriate for an untrained counselor to maintain the client as part of his or her case load, referral will be necessary for special services and consultations. It is important that clients see referral as necessary to their rehabilitation and not as an attempt on the part of the counselor to "pass the buck." Thus referral needs to be part of the counseling and rehabilitation process and the client needs to see referral in the context of this process. The best way to help the clients see the necessity and value of referral is to make sure the clients are kept fully aware of what is happening in their case. There is no excuse for not keeping the clients fully informed. If the clients are aware of the services available to them from referral, if they are encouraged to express their feelings concerning referral, and if the counselor operates in a supportive manner in response to client anxieties about referral, the process usually is accomplished with a minimum of difficulty and a maximum of client motivation.

Obviously, the most important knowledge for counselors in regard to referral is a knowledge of community, state and national resources for the visually disabled and hearing-impaired. National resources are listed in Appendices D and E. The counselor will need to identify resources in his own state or community.

Vocational and Educational Counseling

The following section is divided into two parts — vocational counseling and educational counseling — with each discussed in depth.

Vocational Counseling

Rehabilitation counseling, like all forms of counseling, emphasizes knowing the client, developing an effective counseling relationship, and consideration of the client's total functioning. However, since the goal of most rehabilitation settings is a return to a productive role in society, vocational and occupational counseling is emphasized. Because vocational goals are strongly affected by training, educational counseling is likewise emphasized. The rehabilitation counselor working with the visually or hearing disabled needs to become aware of the problem, processes and resources involved in vocational and educational counseling with blind or visually handicapped and the deaf or hard-of-hearing.

The Process

Vocational counseling with the visually and hearing disabled is a process of trying to find what the clients may wish to do, what they are capable of doing, what opportunities exist for them to do it, and the training or experience required for doing it. This process is a complex one, involving all the usual skills and techniques of vocational counseling with any population. Decisions are arrived at jointly by the counselor and the client since, to be effective and to insure client motivation, the process of vocational counseling must involve a partnership.

Vocational counseling with the visually and hearing disabled differs from vocational counseling with nondisabled groups in that the disability makes even more complex the process of identifying aptitudes and matching them with vocational opportunities. Educational deficits are much more likely with this population than among many other disability groups and among the nondisabled. This will be particularly true with the congenitally deaf. Much vocational counseling will involve methods of remediating educational deficits or seeking ways to minimize their effects. Since vocational counseling does little good unless occupational opportunities exist for the disabled, the counselor will find it necessary to become expert in vocational opportunities which exist in his or her state and local area. Further, counselors will find it necessary to engage in actual job development for their clients and, thus, must frequently work with employers to obtain vocational opportunities for their clients.

While vocational decision making should be a joint venture of the client and the counselor, the deaf and hard-of-hearing and the blind or visually handicapped frequently appear to have unrealistically high aspirations in regard to careers. This may be due to a variety of factors, including overprotection by parents and teachers, inadequate educational background, or a method of protection against failure ("If I aim too high and fail, no one can blame me for not trying"). Conversely, some clients may have given up and become unwilling to seek occupations appropriate to their level of functioning. For these reasons, the counselor working with visually and hearing-disabled clients may need to be very directive in their approach. Choice of a vocational goal may involve a process of selling the client on a program most nearly suited to the client's interests and abilities. This places a great deal of responsbility upon the counselor and requires thorough knowledge of the client and the occupational world.

Educational Counseling and Training Opportunities

Choice of education or training is, of course, part of the process of vocational counseling. With both the visually and hearing disabled, it is necessary that rehabilitation counselors be sensitive to the serious educational problems posed by both disabilities, and the resources available for the education and training of both groups.

The Deaf and Hard of Hearing

Universities and colleges. The suitability of a regular university program for a deaf client must be carefully evaluated. Generally, in order to succeed in such a setting, the deaf client's language, reading, writing and mathematical skills must be considered above the norm for hearing-disabled people in general. The major problem encountered by the deaf student will, of course, be language and information processing. If the client is orally oriented with high expressive and receptive verbal skills, the problem of information processing will be less than if the client is manually oriented and relies exclusively on a signal communication system. Even for a client who is orally oriented, however, problems will

exist. The quality of lighting may be a problem. Glaring lights or dim lights can reduce the ability to clearly see others for lip-reading. Distance from the lecturer or excessive movement on the lecturer's part reduces the ability to perceive what the lecturer is saying.

The willingness of the instructor to repeat instructions or review classwork either during or after class is important. Since it is difficult to write and lipread simultaneously, the willingness of other students to share notes or act as notetakers may be critical in some classes. Other problems encountered by the deaf student with oral communication skills include the degree of structure provided by the class, the problem of missing a vital instruction, and the problem of increasing use of audio and television formats for instruction. Lipreading is often not at all possible with such equipment. Many of these problems can be alleviated by cooperative students or instructors. Other possible solutions are tape recording lectures for later transcribing, hiring notetakers, and engaging tutors for help in particularly difficult classes.

Deaf students with little or no skill in oral communication will suffer from many of the same problems listed above, but will also experience additional problems. For the deaf student who relies on manual communication, both a notetaker and an interpreter will be a necessity. It is impossible in the typical college classroom to watch the teacher, the interpreter, and take notes. Hence, a notetaker is required. Unfortunately, notetakers vary considerably in what they think is important. The student may need to try several before he or she finds one that is adequate.

The interpreter serves to transform the oral communication of the teacher to the manual communication of the non-oral deaf. The interpreter needs to be quite competent in language skills as well as manual communication skills. A good interpreter will have an understanding of deaf people and their needs and desires in the classroom. Other than for momentary curiosity, the interpreter need not be a disturbing factor to other students in the classroom. However, some individual instructors may object to the use of interpreters in their classrooms. Such an attitude seems remarkably insensitive and, fortunately, rarely occurs.

One final problem needs to be discussed. The deaf or hard-of-hearing client may suffer a severely constricted social life in the typical university environment. Sometimes such clients turn to

loners or may become so disenchanted with the environment that they drop out. At such critical times, the counselor may find it wise to advise a change to a specific program for the deaf where social opportunities are greater and where the deaf student may find a variety of outlets for his or her energies. Specific university programs for the education of the deaf are few in number. They include: Gallaudet College, the world's only liberal arts college for the deaf, the National Technical Institute for the Deaf, California State University at Northridge, and several colleges and universities that provide very small programs for the deaf with facilities for 10 to 25 students.

Vocational schools. Vocational school may seem the most appropriate avenue for the achievement of the vocational goals arrived at by the counselor and the client. Vocational schools may also appear to pose a lesser problem in regard to the language handicap of the deaf client than a university or college. While this may be true, the client will still be at a distinct disadvantage when compared to his hearing peers and will suffer from many of the problems discussed in the previous section. The counselor who chooses vocational school for the deaf client in the expectation the client's language skills will not be a handicap is doomed to disappointment and the client to frustration.

There are some vocational schools with programs specifically designed for deaf and hard-of-hearing students. A booklet, published for the National Technical Institute for the Deaf by Gallaudet College, exists which lists all such schools.

Other sources of training. In addition to vocational or technical schools and universities, the deaf and hard-of-hearing client may receive vocational training through apprenticeships, on-the-job training, and sheltered workshops. If oral communication is a serious problem with the client, both apprenticeships and on-the-job training will require understanding and patient supervisors. Sometimes, apprenticeships or on-the-job training can be arranged with supervisors who are themselves hearing disabled. This may improve understanding, but may also poorly prepare the client to move from such a relatively protected situation to employment in the more competitive, hearing world. Sheltered workshops of the terminal variety and the rehabilitation variety are few in number for the specifically hearing disabled, although general workshops for the disabled may be used with deaf or hard-of-hearing clients.

Universities and colleges. The educational problems of visually disabled persons can also be said to be based on deficits in the normal information processing system. The impairment may be somewhat broader for the blind than it is for the deaf, as it includes spatial awareness. A major problem is the need for visually disabled persons to orient themselves to the physical setting in order to be able to function independently of sighted guides. Another problem is that of note taking, with or without braille. Reader services may be needed in order to utilize the resources of a library or to read a text. Courses which are highly visually oriented may cause difficulties. The preparing of papers and the taking of tests also present obvious problems, all of which need to be solved on an individual basis.

While the major problem of the hearing disabled tends to be communication, the major problem of the visually disabled tends to be mobility. Reaching the campus and finding one's way around it may be a formidable problem for the blind student. Mobility training with the long cane and orientation training are of great advantage before the client begins a career as a student. Contrary to popular opinion, guide dogs are of very little value for most blind individuals unless such individuals have already learned independent travel skills. Even with mobility and orientation training, some blind students prefer to use guides, who may also double as notetakers, for campus travel. Since total blindness is relatively rare, the degree of vision or light perception the blind student has will strongly affect his or her capacity for travel and orienting oneself in the university environment.

Unlike the hearing disabled, the blind student's problems lie not in hearing what the instructor or other students say, but in finding a way to record that information. The braille slate and styllus is a time honored technique for taking notes, but braille is a difficult system for some visually disabled persons to learn and use. Some blinded individuals, for example those suffering from diabetic retinopathy, have reduced feeling in their fingers which makes braille an unrealistic technique. The use of tape recorders is probably the most used current technique for coping with classroom lectures and discussions, sometimes coupled with braille note taking. Other blind students may use notetakers just as the

hearing disabled do, but this system places control over what is recorded out of the hands of the student. Some instructors object to the use of tape recorders in their classes, but if the student explains the reason for recording lectures, the instructor rarely objects.

Classes in which visual displays are a large part of the instructional technique represent extremely difficult problems for the blind and visually disabled. The blind student can cope with such classes by conferring with the instructor or other students concerning the content of such visual displays, but this represents only a partially satisfactory solution.

The deaf and hard-of-hearing compensate for their problems with lectures and class discussions through careful reading of texts and supplementary reading materials. This, of course, is impossible for those with serious visual disability. Many books are available in braille, but those generally represent only books of general interest rather than textbook material. Further, braille reading is a long and laborious process for most visually disabled individuals. Sighted readers are most frequently used by the blind to cover text and other written materials. Most often this is accomplished by having the reader read into a tape recorder. The reliability of the reader is of great importance. If the reader is not available when the blind student needs the material to be read, the student may get irretrievably behind in his or her classwork. Other important attributes of the reader are voice quality and reading ability.

Tape recorded reading material has one major disadvantage. Recorded speech runs at an average rate of eighty to a hundred words per minute. The average college student can read at least two hundred words per minute. Thus, covering textual material through listening to a tape recorder requires at least twice as much time as reading the same material. In addition, the slow pace of recorded material allows for distractions and resultant interference with comprehension. An additional problem of recorded textual material relates to using it for review. It is almost impossible to find specific information needed for a test among the eight to ten reels of recorded material that comprises a recorded text. There is no way to underline, for immediate retrieval, tape recorded material. Experiments with techniques of compressing speech hold some hope of speeding the process of meaningful reception of recorded material to as much as four hundred words per minute.

Such devices are not yet available for the blind student, however. Adding the time it takes for a reader to read the text to the time it takes the blind student to listen to the same material makes it clear that the visually disabled student must be a careful planner.

The problems of writing papers place a high premium on typing ability with the blind student. Readers can be used to proofread papers and help with the organization of materials. Tests normally require working with the class instructor to obtain permission for the use of a reader who can read the questions and record the student's responses. Sometimes, instructors may alter the form of their examination if it is particularly inappropriate for the blind student.

Clearly, university training for visually disabled clients requires superior ability and motivation on the part of the client. It usually also requires special training in mobility, the use of braille and tape recorders, skill in typing, and the appropriate use of readers before such training should be undertaken. Rehabilitation counselors must keep all of this in mind in planning the vocational and educational future of their clients.

Vocational training, apprenticeships, on-the-job training and sheltered workshops. There are no special universities, technical or vocational schools for the blind. Some schools offer a few special courses for the visually disabled and some have had more experience with visually disabled students than others. Generally, however, visually disabled individuals find university, vocational or technical training in the same settings as their non-disabled counterparts.

The rehabilitation counselor may find it necessary to work with vocational or technical school personnel to help them overcome their fear and anxiety concerning the blind student. Occasionally, special processes or equipment may be needed, but this is relatively rare.

On-the-job training and apprenticeship programs are utilized whenever appropriate, but on the same basis and in the same way as with any disabled or nondisabled group. Once again, counselors may find it necessary to help on-the-job training or apprenticeship supervisors deal with their anxieties concerning the blind, but few if any special considerations need be made.

Sheltered workshops are much more frequently used with the visually disabled than with the hearing disabled. Terminal

workshops in which the blind find sheltered employment for indefinite periods of time are numerous. Rehabilitation workshops designed to evaluate vocational skills and provide some technical training as well as teach appropriate vocational behaviors are in increased use with the blind as they are with all disability groups.

Summary

The rehabilitation of clients with serious visual or hearing disability is frequently a lengthy and complex process. The previous pages of this chapter have done little more than hint at the complexity. Those who wish to follow a career of rehabilitation with the deaf and hard-of-hearing or with the visually disabled will need to seek special training and experience beyond that offered by most rehabilitation counselor training programs. It is hoped that many will seek such training and experience because the need is great, as are the opportunities. For those counselors who will work with the visually and hearing disabled incidental to their major concerns in rehabilitation, it is hoped the preceding pages will reveal some of the questions that must be asked. They provide few answers.

References

Allen, V. L. Editor. *Psychological Factors in Poverty.* Chicago: Markham. 1970.

Altshuler, K. A.; and Ranier, J. D. "Mental Health and the Deaf: Approaches and Prospects." National Conference on Mental Health Services for Deaf People, Houston, Texas. 1968.

Anthony, W. A. "Societal Rehabilitation: Changing Society's Attitudes toward the Physically and Mentally Disabled." *Rehabilitation Psychology* (1972), vol. 19, no. 3.

Ayer, M. J. "Employability of Handicapped Individuals in the Teaching Profession: Consideration for Rehabilitation Counseling." *Rehabilitation Counseling Bulletin* (June 1970), vol. 13, no. 4.

Barker, R. G.; *et al.* "Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability." (Cited in Kutner, 1971.)

Bauman, M. D.; and Yoder, N. H. *Adjustment to Blindness, Reviewed.* Springfield, Illinois: Charles C. Thomas. 1966.

Bauman, M. K. "Special Problems in the Psychological Evaluation of Blind Persons." *Social and Rehabilitation Services for the*

Blind. Edited by R. G. Hardy and J. G. Cull. Springfield, Illinois: Charles C. Thomas. 1971.

Beach, L. R. *Psychology: Core Concepts and Special Topics.* New York: Holt, Rinehart and Winston. 1973.

Benton, W. H.; Heron, W.; and Scott, T. H. The Effects of Decreased Variation in the Sensory Environment. *Canadian Journal of Psychology* (1958), vol. 80.

Blindness and Services to the Blind in the United States. Organization for Social and Technical Innovation, Inc. Cambridge: OSTI Press. 1971.

Bolton, B. *Introduction to Rehabilitation of Deaf Clients.* Arkansas Rehabilitation Research and Training Center. January 3, 1973.

Bowlby, J. "The Influence of Early Environment in the Development of Neurosis and Neurotic Character." *International Journal of Psychoanalysis* (1940), vol. 21, no. 2.

_____. "Maternal Care and Maternal Health." *Bulletin of the World Health Organization* (1951), vol. 3.

_____. "The Nature of the Child's Tie to His Mother." *International Journal of Psychoanalysis* (1958), vol. 39.

Carroll, Rev. T. J. *Blindness: What It Is, What It Does, and How to Live with It.* Boston: Little, Brown. 1961.

Cobb, A. B. Editor. *Medical and Psychological Aspects of Disability.* Springfield, Illinois: Charles C. Thomas. 1973.

Davis, H.; and Silverman, S. R. *Hearing and Deafness.* New York: Holt, Reinhart and Winston. 1970.

Duane, T. D. *Ophthalmic Research.* New York: Research to Prevent Blindness, Inc. 1965.

Endo, G. T. "Social Drive or Arousal: A Test of Two Theories of Social Isolation." *Journal of Experimental Child Psychology* (1968), vol. 6.

English, W. R. "Correlates of Stigma towards Phsyically Disabled Persons." *Rehabilitation Research and Practice Review* (1971), vol. 2, no. 4.

Farber, B. "Perceptions of Crisis and Related Variables." In *The Impact of a Retarded Child on the Mother.*" (Cited in Bauman and Yoder, 1966.)

Fitting, E. A. *Evaluation of Adjustment to Blindness.* (Cited in Bauman and Yoder, 1966.)

Freidson, E. "Disability as a Social Deviance." (Cited in Kutner, 1971.)

Furth, H. G. *Deafness and Learning: A Psychological Approach.* Belmont, California: Wadsworth. 1973.

Garrett, J. F.; and Levine, E. S. Editors. *Psychological Practices with the Physically Disabled.* New York: Columbia University Press. 1962.

Gewintz, J. L.; and Baer, D. M. "Deprivation and Satiation of Social Reinforcers as Drive Conditions." (Cited in Travers, 1963.)

Grossman, S. P. *Essentials of Physiological Psychology.* New York: John Wiley and Sons. 1973.

Hardy, R. F.; and Cull, J. G. *Social and Rehabilitation Services for the Blind.* Springfield, Illinois: Charles C. Thomas. 1972.

_____. *Severe Disabilities: Social and Rehabilitation Approaches.* Springfield, Illinois: Charles C. Thomas. 1974.

Heathers, G. "Acquiring Dependence and Independence: A Theoretical Orientation." (Cited in Bauman and Yoder, 1966.)

Hebb, D. O. *Organization of Behavior.* (Cited in Travers, 1963.)

Hellmuth, J. Editor. *Cognitive Studies.* Volume I. New York: Brunner Mazel. 1970.

Jacobsen, J. Personal communication, 1975.

Janis, I. L. *Psychological Stress.* (Cited in Bauman and Yoder, 1966.)

Jaques, M. *Rehabilitation Counseling: Scope and Services.* New York: Houghton-Mifflin. 1970.

_____. "Treatment of the Disabled in Primitive Cultures." (Cited in Kutner, 1971.)

Jordan, J. E. *Attitudes toward Education and Physically Disabled Persons in Eleven Nations.* (Cited in Kutner, 1971.)

Kagan, J.; and Havemann, E. *Psychology: An Introduction.* New York: Harcourt Brace Jovanovich. 1972.

Kelley, H. H.; *et al.* "Some Implications of Social Psychological Theory for Research on the Handicapped." (Cited in Kutner, 1971.)

Kutner, B. "The Social Psychology of Disability." In *Rehabilitation Psychology.* Edited by W. S. Neff. Washington, D.C.: American Psychological Association. 1971.

Leary, P. A.; and Tseng, M. S. "The Vocational Rehabilitation Process Explained." *Rehabilitation Tomorrow* (January-February 1974).

Levine, E. S. *The Psychology of Deafness.* New York: Columbia University Press. 1960.

_____. "Psychological Tests and Practices with the Deaf." *The Volta Review* (1974), vol. 76, no. 5.

_____. "Psychological Evaluation of the Deaf Client." In *Measurement and Evaluation in Rehabilitation.* Edited by B. Bolton. Springfield, Illinois: Charles C. Thomas. 1975.

Lindemann, E. "Symptomatology and Management of Acute Grief." *American Journal of Psychiatry* (1944), vol. 101. (Cited by Bauman and Yoder, 1966.)

Lowenfeld, B. "The Blind." (Cited in Bauman and Yoder, 1966.)

McDaniel, J. W. (Cited in Shontz, 1971.)

Myerson, L. "A Psychology of Impaired Learning." (Cited in Kutner, 1971.)

Myklebust, H. R. *The Psychology of Deafness.* New York: Grune and Stratton. 1964.

National Institute of Neurological Disease and Blindness. *Vision and Its Disorders.* Bethesda, Maryland: Public Health Service. U.S. Department of Health, Education and Welfare. 1967.

Newby, H. A. *Audiology.* New York: Appleton-Century-Crofts. 1964.

Newland, T. E. "Psychological Assessment of Exceptional Children and Youth." In *Psychology of Exceptional Children and Youth.* Edited by W. H. Cruickshank. Englewood Cliffs, N. J.: Prentice Hall, 1963.

NSPB Fact Book. New York: National Society for the Prevention of Blindness, Inc. 1966.

Perry, Donald. Personal communication, 1975.

Ranier, J. D.; and Altshuler, K. A. *Psychiatry and the Deaf.* Workshop report. New York: New York State Psychiatric Institute. 1967.

Richardson, S. A. "The Effect of Physical Disability in the Socialization of a Child." (Cited in Kutner, 1971.)

Rothschild, J. "Deaf-Blindness." In *Psychological Practices with the Physically Disabled.* Edited by J. F. Garrett and E. S. Levine. New York: Columbia University Press. 1962.

Rushton, W. A. H. "The Retinal Organization of Vision in Vertebrates." In *Biological Receptor Mechanisms. Symp. Soc. Exp. Biol.* Volume 16. New York: Academic Press. 1962.

Sanderson, Robert G. Personal communication, 1975.

Sanford, F. H. *Psychology: A Scientific Study of Man.* Belmont, California: Wadsworth. 1965.

Scheff, T. J. "Preferred Errors in Diagnosis." (Cited in Kutner, 1971.)

Schein, J. D.; and Delk, M. T. *The Deaf Population of the United States.* Silver Springs, Maryland: National Association of the Deaf. 1974.

Scott, R. A. "Comments about Interpersonal Processes of Rehabilitation." (Cited in Kutner, 1971.)

Shontz, F. C. "Physical Disability and Personality." In *Rehabilitation Psychology.* Edited by W. S. Neff. Washington, D.C.: American Psychological Association. 1971.

Siller, J.; *et al.* "Studies in Reactions to Disability. XI: Attitudes of the Non-disabled toward the Physically Disabled." (Cited in Kutner, 1971.)

Spear, J. Unpublished survey, University of Utah, 1975.

Stewart, G. Personal communication, 1975.

Sussman, A. E.; and Stewart, L. G. Editors. *Counseling with Deaf People.* New York: Deafness Research and Training Center, New York School of Education. 1971.

Sussman, M. B. "Sociological Theory and Deafness: Problems and Prospects." (Cited in Kutner, 1971.)

Thompson, R. F. *Foundation of Physiological Psychology.* New York: Harper & Row. 1967.

Travers, R. M. *Essentials of Learning: An Overview for Students of Education.* New York: Macmillan. 1963.

Vernon, M. "Main Tools for Effective Diagnosis." In *International Research Seminar on the Vocational Rehabilitation of Deaf Persons.* Edited by G. T. Lloyd. 1968.

Wallace, J. H. "Attitudes and Blindness." In *Social and Rehabilitation Services for the Blind.* Edited by R. G. Hardy and J. G. Cull. Springfield, Illinois: Charles C. Thomas, 1971.

Walters, R. H.; and Ray, W. E. "Anxiety, Social Isolation, and Reinforcer Effectiveness." *Journal of Personality* (1960), vol. 21.

Williams, F. Editor. *Language and Poverty: Perspectives on a Theme.* Chicago: Markham. 1970.

Wilson, E. D. "A Comparison of the Effects of Deafness Simulation and Observation upon Attitudes, Anxiety, and Behavior Manifested toward the Deaf." *Journal of Special Education* (1971), vol. 5, no. 4.

Zimmerman, L. E. "Congenital and Developmental Malformations of the Eye." In *Vision and Its Disorders.* Washington, D.C.: U.S. Department of Health, Education and Welfare. 1967.

Appendix A
Annotated Bibliography – Blind

Appendix A

Baker, L. D. "Blindness and Social Behavior: A Need for Research." *New Outlook for the Blind* (1973), vol. 67, no. 6.

After briefly noting that the literature on the psychology of blind persons has been largely concerned with personality and public attitudes, the author concludes that there has been a lack of progress in theory development and research. He suggests that progress may be stimulated by examining the role of behavior in theories of socialization as a starting point for research. Specific areas of research to be considered are: (1) attitudes of others toward the blind, (2) the behavior of others when interacting with the blind, (3) the self-concepts of the blind, and (4) the behavior of the blind when interacting with others. Nine references.

Blasch, B. B.; *et al.* "Auditory Maps: An Orientation Aid for Visually Handicapped Persons." *New Outlook for the Blind* (1973), vol. 67, no. 4.

Auditory maps, recorded on cassette tapes, can be used to provide a visually handicapped person who is trained in long-cane or dog-guide mobility skills with a verbal description to orient him to a specific travel area (district map). It is suggested that the information included on such maps can best be prepared by an orientation and mobility specialist and that the content of the map can best be expressed using one or more of the following orientation reference systems: egocentric, topocentric, cartographic, and polarcentric. Sample scripts for auditory district and route maps are included. Twelve references.

Brolin, D. "The Facility You Choose — Will Using a Facility Help Your Client?" *Journal of Rehabilitation* (1973), vol. 39, no. 1.

A guide to evaluating a rehabilitation facility in terms of its value for a particular client and how to contribute positively to the client's success in a facility once it is decided that he can benefit from its program.

Burleson, G. "Modeling: An Effective Behavior Change Technique for Teaching Blind Persons." *New Outlook for the Blind* (1973), vol. 67, no. 10.

The application of Bandura's modeling techniques in working with a legally blind male in a residential facility for the mentally retarded resulted in improved attitudes and behaviors. The descriptions and implications of this case study should serve as a guide to others interested either in direct applications of modeling techniques or an effective method to help overcome clinically debilitating emotions in blind clients. Eleven references.

Byrd, O. E.; and Byrd, T. R. Editors. *Medical Readings on Vision, Speech and Hearing.* San Francisco: Boyd & Fraser Publishing Company. 1971.

Several comprehensive chapters on various disorders. Part I has chapters on vision, heredity and blindness, accidental blindness, infections, glaucoma, strabismus (crossed eyes), cataracts, allergies, and so forth. Articles were taken from various journals, books, and other publications. Most are very short and easily read. Very interesting.

Carney, C. "Adaptations of Psychological Testing for Use by the Blind." *Journal of School Psychology* (1972), vol. 12, no. 2.

The author, a blind psychological examiner, describes the adaptations of projective personality and intelligence tests which enabled her to administer them independently.

Chronbach, L. E. *Essentials of Psychological Testing.* New York: Harper & Row. 1970.

Very good text as a survey of assessment instruments, although typically as applied to standard groups. Especially useful chapters on scoring, interpretation and norms, and validation of tests. Includes a listing of publishers and distributers of psychological tests.

Cobb, A. B. Editor. *Medical and Psychological Aspects of Disability.*

Readings on various disabilities (e.g., heart disease, hemiphlegia, cerebral palsy). Of particular interest are two chapters on deafness ("Rehabilitation Medical Aspects of Hearing Disorders" and "Educational and Social Factors in the Rehabilitation of Hearing Disorders") and two chapters on blindness ("The Path of Light" and "Psychological Adjustment to Blindness").

Connor, G. B.; and Muldoon, J. F. "A Statement of Needs of Blind and Visually Impaired Individuals." *New Outlook for the Blind* (1973), vol. 67, no. 8.

After defining blindness and visual impairment, and noting that either may be present congenitally or occur later in life (adventitious), the authors identify three interdependent levels which descriptions of blind and visually impaired persons should include – the physiological, the personal, and the social. Needs shared by all such individuals include assistance in mobility, communication, information collection, physical expression, and psychological functioning. This is followed by detailed discussions of the needs of congenitally blind, adventitiously blind, congenitally visually impaired, and adventitiously visually impaired persons on each of the three levels of analysis at various ages throughout life. Five references.

Gillman, A. E. "Handicap and Cognition: Visual Deprivation and the Rate of Motor Development in Infants." *New Outlook for the Blind* (1973), vol. 67, no. 6.

The author reviews the research studies on the relationship of developmental delays and visual deprivation. A follow-up study at the New York Association for the Blind is described, and the details of a representative case are presented. The conclusion reached is that delays in development are not due to blindness per se, but to other causes; therefore, the growth and development of the nonhandicapped average child should be considered the basis of work with all children. Eighteen references.

Hayes, S. P. *Contributions to a Psychology of Blindness.* New York: American Foundation for the Blind, Inc. 1941.

Somewhat dated material, but good section on assessment of mental capabilities of the blind.

Kenmore, J. R. "Helping Blind Persons to Find and Prepare for Employment."*New Outlook for the Blind* (1973), vol. 67, no. 3.

Four kinds of job market surveys are recommended for discovering possible occupations for blind persons. The role of schools in promoting success of blind youngsters when they enter the job market is discussed. Where schools fail, many countries start intermediary centers to prepare blind young people for the world of work. The role of the placement officer is emphasized as are the roles of agencies and government.

Lanyon, R. I.; and Goodstein, L. D. *Personality Assessment.* New York: John Wiley and Sons, Inc. 1970.

An advanced text on personality assessment. Gives historical perspective, explanation of typical concepts, different methods of assessing personality (or behavior), reliability and validity, problems of application, and criticisms of personality assessment. Recommended to students interested in personality assessment and reliability and validity of tests. No application is made for use in rehabilitation settings with normal or impaired clients. 460 references.

Lende, H. *Books about the Blind.* New York: American Federation of the Blind. 1953.

Although a rather dated publication, this book lists a comprehensive annotated bibliography of literature on the blind. Various sections include: work with the blind, education of blind children, psychological research on blindness, vocational aspects, and social adjustment. Good source for background information on problems of blindness.

Schlaegel, T. F.; and Hoyt, M. *Psychosomatic Ophthalmology.* Baltimore: The Williams and Wilkins Company. 1957.

Topic is somewhat tangential to the rehabilitation process with the blind, but is interesting as a related field. Chapters discuss all kinds of diseases of or relating to the eye, vision, and the blind. This covers aspects of non-organically impaired and does devote two entire chapters to problems of the blind.

Scott, R. A. *The Making of Blind Men: A Study of Adult Socialization.* New York: Russell Sage Foundation. 1969.

Good presentation of social, interpersonal, and rehabilitation problems of the adult blind. Easily read and understood.

Thornton, W. "The Binaural Sensor as a Mobility Aid." *New Outlook for the Blind* (1971), vol. 65.

Uxer, J. E., "Career Education and Visually Handicapped Persons: Some Issues Surrounding the State-of-the-Art." *New Outlook for the Blind* (1973), vol. 67, no. 5.

The philosophy of career education is contrasted with the specific program approaches used in implementing it. Highlights of career education planning in Texas are presented, along with an overview of the national picture. The problems plaguing this field are discussed, as are the future possibilities. Seven references.

Appendix B
Annotated Bibliography – Deaf

Appendix B

Byrd, O. E.; and Byrd, T. R. Editors. *Medical Readings on Vision, Speech and Hearing.* San Francisco: Boyd & Fraser Publishing Company. 1971.

Comprehensive collection of articles on three major topics: vision, speech, and hearing. Chapters on hearing impairment include such areas as: deafness, infectious causes of hearing impairment, accidental loss, drugs as causes, hearing tests, and treatment for hearing loss. Articles are compiled from journals, books, and other sources. Usually these have been edited and simplified. Good cross-section of topics and viewpoints.

Cobb, A. B. Editor. *Medical and Psychological Aspects of Disability.*

Readings on various disabilities (e.g., heart disease, hemiphlegia, cerebral palsy). Of particular interest are two chapters of deafness ("Rehabilitation Medical Aspects of Hearing Disorders" and "Educational and Social Factors in the Rehabilitation of Hearing Disorders") and two chapters on blindness ("The Path of Light" and "Psychological Adjustment to Blindness").

Davis, S.; and Silverman, S. R. Editors. *Hearing and Deafness.* San Francisco: Holt, Rinehart and Winston. 1970.

Moderate-level text on topics relating to deafness. Audiology, ear anatomy, audiological tests, hearing aids, rehabilitation for hearing loss, and social and psychological aspects of hearing loss are most of these topics. Easy reading on some difficult to understand areas.

Fellendorf, G. W. Editor. *Bibliography on Deafness.* Washington, D.C.: Alexander Graham Bell Association for the Deaf. 1966.

This is a complete listing of articles appearing in the *Volta Review* (1899 to 1965) and the *American Annals of the Deaf* (1847 to 1965).

_____. *Bibliography on Deafness: Supplement 1966-1972.* Washington, D.C.: Alexander Graham Bell Association for the Deaf. 1973.

This is a selected index of articles appearing in either the *Volta Review* or the *American Annals of the Deaf* between 1966 and 1972. Articles are categorized according to topics, but no description of the work is given.

Furth, H. G. *Deafness and Learning: A Psychological Approach.* Belmont, California: Wadsworth Publishing Co. 1973.

Updates an earlier book by Furth. The first five chapters carry the reader through typical everyday activities of the deaf, from childhood, through adolescence, to adulthood. The next three chapters discuss research on thinking, personality, and testing of the deaf person. The final chapter pulls all the implications together to give a unified picture of a good approach to deafness: in the home, in the society, and in the schools. 24 references.

_____. *Thinking without Language: Psychological Implications of Deafness.* New York: Free Press. 1966.

Furth has researched much of the cognitive functioning of deaf children. This text presents many of those studies, particularly those dealing with Piagetian tasks of conservation. There are also good sections on thinking in deaf people, how to assess cognitive functioning and the practical (educational) implications of the research. Good source for background in psychological research on the deaf. 58 references.

Katz, J. Editor. *Handbook of Clinical Audiology.* Baltimore: The Williams & Wilkins Co. 1972.

Readings from all areas of audiology, from calibration of instruments to interpretation of results of audiological examinations. General sections include "Basic Hearing Evaluation," "Cochlear vs. Retrocochlear Diagnosis," "Central Auditory Function," "Nonorganic Loss," "Hearing Aids," and "Aural Rehabilitation." Recommended reading for

further information of relevance to rehabilitation of deaf clients see sections on "Basic Hearing Evaluation," "Nonorganic Loss," "Hearing Aids," and "Aural Rehabilitation." Good source for understanding results and implications of audiological reports.

Langenbeck, B. *Textbook of Practical Audiometry.* Baltimore: Williams & Wilkins Co. 1965.

Shorter explanations of audiometry and measurement techniques. Written for students in speech and hearing pathology.

Myers, L. J. *The Law and the Deaf.* Washington, D.C.: U.S. Department of Health, Education and Welfare. 1964.

This publication deals with a wide range of problems which the deaf may encounter within the legal system. Appearances in court, contracts, accident claims, criminal matters, service agencies, and responsibilities for the deaf are just some of the topics. A good, comprehensive source written clearly yet authoritatively for professionals who will be working with the deaf: counselors, lawyers, judges, and people working in rehabilitation.

Rainer, J. D.; and Altshuler, K. F. Editors. *Psychiatry and the Deaf.* Washington, D.C.: Department of Health, Education and Welfare. 1967.

Proceedings from a two-day workshop at the New York School for the Deaf presented as a transcript of the events. Emphasis was to make psychiatrists more aware of problems particular to the deaf and how the mental health services can be extended to serve the deaf patient. Although the workshop was predominantly psychiatrically oriented, implications are easily transferred to psychological services.

Ventry, I. M.; *et al.* Editors. *Hearing Measurement.* New York: Appleton-Century-Crofts. 1971.

A collection of readings by various authors on topics of audiological assessment: calibration, measurement of pure-tone thresholds, measurement of speech thresholds, measurement of speech discrimination, masking, identification audiometry, and problems in measurement.

Appendix C
Psychological Tests

Appendix C

Tests are included in this section on the basis of frequency of use and popularity. The information regarding frequency and popularity were taken from many sources, including Newland (1963), Bauman (1972), Levine (1975 and 1975), and Vernon (1972). Four categories are presented: intelligence tests, personality tests, visual perception tests, and vocational tests.

Intelligence Tests

Wechsler Adult Intelligence Scale (WAIS). The WAIS is one of the better individually administered measures of general intelligence. Intended for use with people sixteen years of age and older, this test assesses intellectual functioning in both the verbal and nonverbal (or performance) areas. The WAIS contains six verbal subtests (information, comprehension, arithmetic, similarities, digit span, and vocabulary) and five performance subtests (digit symbol, picture completion, block design, picture arrangement, and object assembly). The instrument yields three scores, consisting of a verbal IQ, a performance IQ, and a full-scale IQ. As for psychometric properties (reliabilities and validities), the WAIS is respected as one of the better tests of its kind.

Haptic Intelligence Scale for Adult Blind (HISAB). This individually administered instrument was constructed specifically to assess nonverbal abilities of totally blind clients sixteen years and older. The test yields a performance IQ score based on seven subtests, including digit symbol, block design, object assembly, object completion, pattern board, and bead arithmetic. Test content and items largely duplicate the WAIS performance subtests.

The HISAB is typically used in conjunction with the verbal scale of the WAIS. One study reported a correlation of 0.65 between HISAB and WAIS verbal IQ. Test-retest reliabilities range between 0.70 and 0.80, with a reported split half of 0.95.

It is important to note that HISAB was normed on the totally blind. Thus, test score interpretation for the partially sighted requires extreme caution.

Stanford-Kohs Block Design Test for the Blind. The instrument is an adaptation of the Kohs Block Design Test; both are measurements of nonverbal intelligence. The central task requires the subject to copy patterns of increasing complexity by arranging blocks. For more information on this test, the reader is referred to Suinn and Dautermann (1966).

Less commonly used tests of nonverbal intelligence. The tests listed below are substitutes for or administered in conjunction with the tests mentioned above. No attempt is made to describe these tests or to discuss their merits. The interested student is referred to Buro's *Mental Measurement Yearbook* and Buro's *Tests in Print* for descriptions of each.

Arthur Point Scale of Performance Tests
Chicago Non-Verbal Examination
Raven's Progressive Matrices
SRA Nonverbal Form

Personality Tests

Rorschach. A widely used projective technique designed to assess one's personality. The test consists of ten achromatic and chromatic cards, on each of which is printed a bilaterally symmetrical ink blot. The Rorschach has been subjected to thousands of studies, but the results have been mixed with respect to adequacy of psychometric properties. Many researchers have warned against the continued use of the Rorschach as a diagnostic tool, while others feel that despite the lack of empirical support the test does yield rich stylistic (response tendencies) data.

Thematic Apperception Test (TAT). The TAT is said to elicit responses reflecting one's thema, or more specifically, the contents of thoughts and fantasies. Materials consist of twenty cards, with each card containing somewhat vague achromatic pictures. The client is asked to make up stories to each card. Like the Rorschach, empirical support regarding reliabilities and validities is somewhat lacking, although the test is widely used.

Minnesota Multiphasic Personality Inventory (MMPI). MMPI is an empirically keyed self-report personality inventory for people sixteen years and older. The test is designed to aid in diagnosis of psychiatric patients and to assist in distinguishing one type of psychopathy from another. The test contains approximately 550 forced choice items (yes, no, don't know) and provides measures for ten basic psychiatric categories (e.g., depression, hysteria, hypomania, schizophrenia). The MMPI is considered to be one of the better personality inventories.

Sentence Completion Test (SCT). The SCT is a projective test which attempts to assess the person's style of response regarding oneself and significant others by asking him or her to finish an incomplete sentence. For example, an item designed to elicit feelings toward one's sibling might read "My brother. . . ." The SCT is similar theoretically to the Rorschach in that both are said to be measures of response style as opposed to measures of one's thema. According to Anastasi (1961), the SCT is a promising test.

Visual Perception Tests

Bender Gestalt. The Bender is a visual perception test typically used to assess for brain damage or neurological dysfunction. The underlying rationale is that distorted perception reflects neurological difficulties. (The Bender is also used as a rough screening device to detect severe personality problems, and some use the Bender as an intelligence test for young children.) The test consists of nine cards, each containing a simple design. The cards are displayed individually and the client is asked to copy as accurately as possible the design on the card with the sample before him. The diagnostic validity of this test is questionable since studies have shown considerable overlap in the types and number of errors among different nosological groups.

Graham Kendall Memory for Design Test (MDT). Like the Bender Gestalt, the MDT is used primarily to determine whether there is presence of brain pathology. Unlike the Bender, however, the MDT brings into play one's short-term memory. The test is composed of fifteen cards, each printed with a geometric design.

The cards, presented individually, are shown for a five-second interval and then withdrawn, after which the client is asked to reproduce the design from memory. A few studies have reported the MDT to be a sensitive instrument in detecting those with severe neurological impairment. The MDT, however, suffers from problems of overlap (like the Bender) when used to assess people with milder forms of brain dysfunction.

Vocational Tests

Two classes of tests are presented in this section: (1) vocational interest tests, and (2) tests of special skills (e.g., psychomotor, general vocational aptitude).

Strong Vocational Interest Blank (SVIB). Considered as one of the best tests of its kind, the merits of the empirically keyed SVIB are legion. This instrument contains 64 scales which yield information on 54 occupations, six occupational group scales, and four nonvocational scales. There are two SVIBs, one for men and one for women. The SVIB is considered a useful test for making predictions about long-term membership in given occupations.

Occupational Interest Survey (OIS). The OIS, formerly known as the Kuder, is similar to the SVIB. While not considered in the same class as the SVIB, the OIS is an adequate instrument which provides information on eighty male occupations and major college fields. In addition, there are 36 keys for women.

Minnesota Rate of Manipulation Test (MRMT). The MRMT is said to assess two types of motor activity, one requiring gross motor coordination (movement of arms, hands, and fingers) and the other requiring fingertip dexterity. There are two general aspects to this test: the first consists of placing sixty cylindrical blocks into a board containing sixty circular holes; and the second, removing each block, turning it over with the other hand, and returning it to the hole. The MRMT norms are outdated (1946), and there have been no technical data on this instrument since 1957.

General Aptitude Test Batteries (GATB). The GATB, developed by the U.S. Employment Service, is an instrument designed to assist employment counselors guide the client into a suitable line of work, given the aptitudes of the client and the aptitude requirements of the occupation. The GATB consists of eight paper and pencil tests and four apparatus tests. Nine factors are measured, including the following: general (math reasoning, vocabulary), verbal (vocabulary), numerical (computation and math reasoning), spatial (three-dimensional space), form perception (tool matching, form matching), clerical perception (name perception), motor coordination (mark making), finger dexterity (assemble, disassemble), and manual dexterity (place, turn). The critical reviews and studies of the GATB have led many to conclude that it is as good as other multiple aptitude batteries.

Other widely used special skills tests. For information on the following tests see Buro's *Mental Measurement Yearbook* or Buro's *Tests in Print.*

Minnesota Paper Formboard
Crawford Small Parts Dexterity
O'Connor's Finger Dexterity
DAT Mechanical Reasoning
Minnesota Clerical Aptitude
California Picture Interest Inventory

Appendix D
National
Organizations for the Blind

APPENDIX D

The American Foundation for the Blind
15 West 16th Street
New York, New York 10011

The National Society for the Prevention of Blindness
79 Madison Avenue
New York, New York 10016

The Library of Congress
Division for the Blind and Physically Handicapped
Washington, D.C. 20542

American Association of Workers for the Blind, Inc.
1511 K Street, N.W.
Washington, D.C. 20005

Association for Education of the Visually Handicapped
919 Walnut Street
Philadelphia, Pennsylvania 19107

Rehabilitation Services Administration
Office for the Blind and Visually Handicapped
330 C Street, S.W.
Washington, D.C. 20201

Division for the Blind and Physically Handicapped
1291 Taylor Street, N.W.
Washington, D.C. 20542

National Institute for the Blind
1455 Broad Street
Bloomfield, New Jersey 07003

American Printing House for the Blind, Inc.
1839 Frankfort Avenue
Louisville, Kentucky 40206

Braille Circulating Library
2700 Stuart Avenue
Richmond, Virginia 23220

National Association for Visually Handicapped, Inc.
3201 Balbon Street
San Francisco, California 94121

American Council of the Blind, Inc.
501 North Douglas Avenue
Oklahoma City, Oklahoma 73106

For a complete listing of all agencies serving the blind, see:

Directory of Agencies: Serving the Visually Handicapped in the U.S. 17th edition. New York: American Foundation for the Blind, 1973.

Appendix E
National Organizations for the Deaf

APPENDIX E

Alexander Graham Bell
Association for the Deaf
3417 Volta Place
Washington, D.C. 20007

American Athletic Association
of the Deaf, Inc.

Board for Missions,
Ministry to the Deaf,
Lutheran Church,
Missouri Synod
210 North Broadway
St. Louis, Missouri 63102

Conference of Executives of
American Schools
for the Deaf
5034 Wisconsin Avenue, N. W.
Washington, D.C. 20016

Convention of American
Instructors of the Deaf
5034 Wisconsin Avenue, N. W.
Washington, D.C. 20016

Council of Education
of the Deaf
3417 Volta Place
Washington, D.C. 20007

Deafness Research Foundation
366 Madison Avenue
New York, New York 10017

Episcopal Conference
of the Deaf
51 Woodale Road
Philadelphia, Pennsylvania
19118

Gallaudet College Alumni
Association
Alumni Office
Kendall Green
Washington, D.C. 20002

International Association of
Parents of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

International Catholic Deaf
Association
8419 Wesleyan Street
Vienna, Virginia 22180

Junior National Association of
the Deaf
Gallaudet College
Washington, D.C. 20002

National Association of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

National Association for Hearing
and Speech Action
919 8th Street, N. W.
Washington, D.C. 20006

National Congress of Jewish Deaf
6131 Claridge Drive
Riverside, California 92506

National Fraternal Society of the Deaf
6701 West North Avenue
Oak Park, Illinois 60302

Professional Rehabilitation Workers with the Adult Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

Registry of Interpreters for the Deaf
Kendall Demonstration Elementary School
Gallaudet College
Washington, D.C. 20002

Teletypewriters for the Deaf, Inc.
5813 Brockton Drive
Indianapolis, Indiana 46220

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St71 VISUAL AND AUDITORY
DISABILITY, AN OVERVIEW FOR
THE REHABILITATION COUNSELOR.
(1977)

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St71

Stone, J. Blair et al.
VISUAL AND AUDITORY DISABILITY,
AN OVERVIEW FOR THE REHABILITA-
TION COUNSELOR.
(1977)

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	Reference Copy
8/13	Lewis Miller

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15 WEST 16th STREET
NEW YORK, N.Y. 10011